

TEXTILE BULLETIN

Vol. 50

JUNE 4, 1936

No. 14

Lower Loom Lubrication Cost!

with



The Modern Lubricant for Textile Machinery

NON-FLUID OIL stays in bearings and off goods—preventing profit-reducing oil spots.

It lubricates dependably, checking wear and power loss. Because it does not drip or leak, **NON-FLUID OIL** outlasts liquid oil 3 to 5 times, saving money on oil and application cost.

Seven out of ten mills lubricate looms with NON-FLUID OIL.

Let us show you why - - with free testing sample!

NEW YORK & NEW JERSEY LUBRICANT CO.

292 MADISON AVENUE

NEW YORK

Works: NEWARK, N. J.

Southern District Manager: L. W. THOMASON, Charlotte, N. C.

WAREHOUSES:

Charlotte, N. C.
Providence, R. I.

Spartanburg, S. C.
Detroit, Mich.

Greenville, S. C.
Chicago, Ill.

Atlanta, Ga.
St. Louis, Mo.

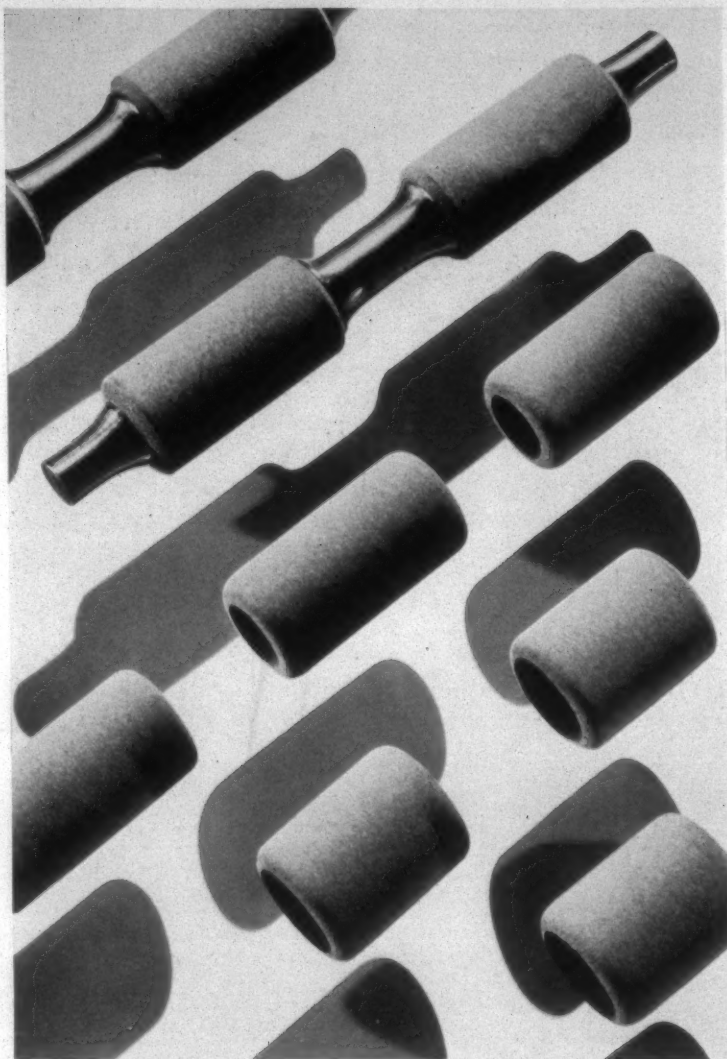
BUY ROLL COVERING ON PROOF!

... HERE'S CONCRETE EVIDENCE OF THE EVER-INCREASING POPULARITY OF ARMSTRONG'S SEAMLESS CORK COTS

DURING the past year *alone*, Armstrong's Cork was specified for 246,040 spindles of new spinning . . . 310,000 spindles of long draft changeover! Nor is that all! Machinery manufacturers have adopted these cots as standard equipment on their long draft drawing and roving frames. Today, more than 25% of "active spindles" in all the mills in the country—a total of approximately 6,000,000 spindles—are equipped with Armstrong's Seamless Cork Cots.

A remarkable record, you'll say. And it is! But this steady growth in the use of cork is even *more* than an enviable record—it's *proof* of the outstanding advantages of Armstrong's Cork Cots. Mills find that these cots are seamless, uniform, have a true and concentric finish, and spin a high quality yarn. And they find, too, that these cots cut roll covering costs as much as 50 per cent!

Armstrong's Seamless Cork Cots have demonstrated their efficiency not only for cotton spinning, but also for spinning staple rayon, rayon and cotton, and cotton and wool mixtures. Let an Armstrong representative show you detailed figures supporting the statements made above. Ask him also about Armstrong's new and improved roll covering—the *Extra Cushion* Cork Cot, made by the exclusive and patented *tubular* process. Or write one of the offices below for details and samples.



SIX IMPORTANT ADVANTAGES OF ARMSTRONG'S EXTRA CUSHION COT

1. Spins strong yarn.
2. Reduces end breakage.
3. Stands up under abuse.
4. Works satisfactorily on old frames.
5. Improves Monday morning start-up.
6. Handles easily in changing numbers.

Armstrong Cork Products Company

Textile Division - 921 Arch Street

BOSTON, MASS.

LANCASTER, PA.

GREENVILLE, S. C.

ARMSTRONG HAS MADE CORK PRODUCTS SINCE 1860

PUBLISHED EVERY THURSDAY BY CLARK PUBLISHING COMPANY, 118 WEST FOURTH STREET, CHARLOTTE, N. C. SUBSCRIPTION \$2.00 PER YEAR IN ADVANCE. ENTERED AS SECOND CLASS MAIL MATTER MARCH 2, 1911. AT POSTOFFICE, CHARLOTTE, N. C., UNDER ACT OF CONGRESS, MARCH 2, 1897.

TEXTILE BULLETIN

VOL. 50—No. 14

JUNE 4, 1936

Lighting for Safety and Production

By Roy A. Palmer, Illuminating Engineer
Duke Power Company

SAFETY to human life and limb in industrial work is very largely dependent upon seeing. If this were not true, employers would not hesitate to hire blind persons. In view of this fact, it is quite obvious that the employer who has an interest in the economic welfare of his plant and who is conscientiously concerned in the humanitarian welfare of his employees, should provide the best possible seeing conditions.

In approaching a discussion of seeing and its relation to present-day safety and production, we should look back to the time of the Neanderthal man to see how he worked to earn his livelihood and how his seeing affected his safety and production. He secured his food from wild fruits, berries and vegetables and from his skill in using his spear. Finding fruits and picking berries certainly did not need exceptional seeing ability but he needed sharp, quick vision to readily discern the animals which he hunted for meat and clothing and from which he had to protect himself. He had no fine details upon which his eyes needed to be focused for any length of time. His work was almost entirely out of doors where the illumination ranges up to 10,000 foot-candles.

It must be remembered that light was as essential to seeing for the Neanderthal man as it is to us today. The finest of human eyes cannot see in total darkness. Only a small quantity of light will permit seeing with difficulty while full daylight under a cloudy sky which softens glare from the sun, will enable one to see fine details easily and quickly.

The hardy prospector in the days of '49 had the same easy seeing conditions as did the cave man—plenty of daylight and no fine details requiring close vision for long periods of time.

It seems that perhaps Nature did not intend that we should work indoors as much as most of us do today. Our eyes were intended for distant vision, yet our work in present-day civilization requires near vision—at arm's length and sometimes closer. Nature intended our eyes for intermittent application instead of continuous concentration. The cave man's day ended at sunset, whereas most of our days too often last until midnight. He had

abundant outdoor light while even the best indoor light we provide for our seeing is but a fraction of what he had. The builders of the Pyramids worked according to Nature's plan. Very few of us are permitted the privilege of working under as easy seeing conditions as they did.

The textile industry, like our many other industries, is not new. Workers generations ago wove cloth with looms which worked so slowly in comparison to our looms today that we cannot imagine an accident occurring to a worker. Though accidents may be few today in weave rooms, certainly looms or any other machines having swiftly moving parts would offer less opportunity for accidents if they were placed under illumination such as the daylight provided for the weavers and other workers hundreds of years ago.

A study of a large group of persons whose work is done under different seeing conditions revealed that those working outdoors under the abundance of light which daylight provides and performing relatively coarse tasks, suffer less from eyestrain than people working at close work indoors. Among farmers and laborers, who represented 40 per cent of the total number of people studied, it was found that one to 20 per cent of them suffered from ocular diseases. Of carpenters and painters representing 10 per cent of the group, 20 to 40 per cent had defective eyes. Among machinists and printers representing another 10 per cent of the total and whose occupation requires detailed vision and indoor work, the percentage with eye defects was 40 to 60 per cent. Housewives and students which were 20 per cent of the total studied, showed 60 to 80 per cent with defective eyes, reflecting the result of their more detailed eye work under poor seeing conditions. Among draughtsmen and stenographers who do still closer work, 80 to 100 per cent of them had ocular or eyestrain diseases.

These figures serve to impress us with the fact that detailed work indoors under poor lighting conditions leads to eye defects. Poor seeing invariably invites accidents regardless of where the work is performed. Eye defects are actually *injuries* to eyes under such conditions and could in themselves be classed as results due to unsafe working conditions. But the dangers to which a worker may be subjected *because* his eyes are defective is also of

*Paper presented before Statewide Safety Conference, Charlotte, N. C., May 14th.

major importance. Thus adequate and proper lighting are a necessary adjunct to a safety program.

A glance at the record of the prevalence of defective vision will reveal the destructive effect of poor seeing conditions largely caused by inadequate and improper light and also shows us the task which industry has in attempting to overcome the handicaps to safety and production because of the prevalence of defective eyes.

Less than 3 per cent of infants have defective vision. School work imposes a hardship on eyes because close visual tasks are performed under poor illumination for long periods. Twenty per cent of the persons under 20 have poor eyesight. Among people 20 to 30 years of age 39 per cent are handicapped by defects of the eyes. This is the group being brought into industry today, slowed up, so to speak, in their ability to avoid swiftly moving machine parts, obstructions in aisles and similar accident hazards. From 30 to 40 years of age almost one-half—48 per cent—of the people are afflicted with subnormal eyesight. Among those 40-50 years of age 71 per cent are similarly handicapped while among persons 50-60 years of age, 82 per cent have poor eyesight. Ninety-five per cent of the people over 60 needed glasses to overcome the weakness imposed by poor eyesight. We might classify these eyes into four classes:

1. Young—Formative period; easily injured; visual habits.
2. Adult—Perform exacting work-world tasks; visual efficiency demanded.
3. Old—Dulled by age through hardened lenses and smaller pupils.
4. Defective—Operate under a handicap which grows progressively worse.

The eyesight specialist can do much to overcome defective eyes by providing glasses to sharpen the vision. A study of the effect of glasses and light showed interesting results. Assuming the visual acuity at 100 per cent when the subjects were without glasses and were provided with only 1 foot-candle of light, a 23 per cent improvement was obtained by adding glasses. Stepping up the illumination from one to 100 foot-candles, brought an improvement of 33 per cent without the use of glasses. By adding glasses under this level of illumination, the visual acuity improved 56 per cent.

It has been definitely shown by detailed scientific tests that good lighting actually benefits workers with defective vision to a greater extent than those workers who have normal eyes. Raising the level of illumination from 3 to 12 foot-candles increased the rate of working 14 per cent among workers with good eyes. However, the same illumination level raised the rate to 22 per cent in the case of the workers with poorer eyes.

From these data, it can readily be appreciated that good lighting plays a most important part in overcoming the handicap of defective eyesight. Moreover, it prevents the further injury to the eyes because it lessens the severity of the task which they must perform.

Accidents and production both depend upon the speed of vision, the visual acuity and accuracy of vision. Data have been gathered from studies in the laboratory which show improvement in all of these factors as the illumination is increased. Assuming the values obtained among these factors under 5 foot-candles as 100 per cent, it is

found that speed of vision will increase up to 153 per cent at 20 foot-candles and remain constant at further increases in illumination. Visual acuity and accuracy of vision increase constantly under various levels of illumination up to 40 foot-candles which was the highest level used in this study.

The reason more light improves seeing is because added light acts as a magnifier of small details. As the size of an object is decreased more light is required in order to see it with equal visibility. Thus an industry where small details must be seen, more light is necessary than where the work is of a coarse nature.

As one grows older the pupils contract and visual acuity decreases. Therefore, older eyes should not be called upon to do fine detailed work unless adequate illumination is provided.

The process of seeing is very complex and lighting has such an important bearing upon the ability and the welfare of a human being as a result, that it may be difficult to fully appreciate how inadequate and improper lighting finally affects production and safety. Inadequate or glaring lighting forces the eyes to be brought near the work and, therefore, greater effort is imposed upon the eyes because they are converged within a narrow angle. Glare also produces a greater contraction of the pupil. Because of the additional work required of the muscles for a continuous period there is considerable strain imposed upon them. All of these efforts on the part of the muscles of the eye cause a greater expenditure of nervous energy which is often responsible for headaches, blurred vision and in many cases serious physical ailment.

In the laboratory, a mechanism was arranged to measure the nervous muscular tension of subjects reading under various levels of illumination. The subjects were told to place their hands on a sensitive button as they read a book of popular fiction. They were not informed of the purpose of the test in order not to unduly influence results. Thousands of tests showed that reading under a low level of illumination produced a strong muscular tension which decreased as the illumination was increased. These tests were conducted with great care and measurements were made by highly sensitive apparatus. With the data obtained in the laboratory and with observations under practical conditions in the field, it is now an accepted fact that nervous tension is increased under low illumination levels. Thus it can be seen that such a condition can contribute to carelessness, inattention and other attitudes on the part of the worker that may contribute to accidents, spoilage or lowered production.

In all working involving seeing whether it be at a study desk or at a machine in an industrial plant, three elements are involved, the eye, the task and the light. Little can be done with the eye except by glasses; the task cannot generally be controlled to improve seeing; the light is the most flexible. It can be controlled in amount, direction, glare, glaring reflections, diffusion contrast with surroundings, shadows, and feeling or tone of the interior. Lighting should, therefore, be installed to provide those conditions which will contribute to best seeing. For example, a bare bulb on a drop cord may provide a quantity of illumination on the work which a light meter would indicate to be quite satisfactory for

(Continued on Page 20)

Notes On Cotton Warp Sizing

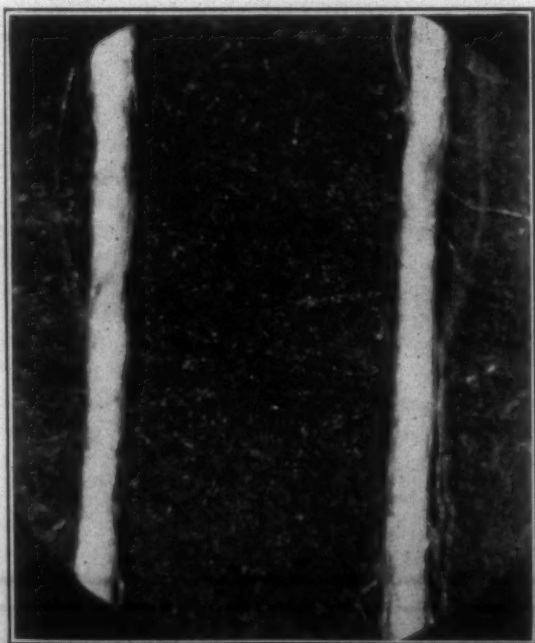
By Ralph Hart

Hart Products Corporation

First of A Series of Articles on This Important Subject

FOR a number of years the writer has kept a file on the subject of sizing of cotton warps, including laboratory and mill experimental notes, reports of weavers' meetings, trade literature, and clippings of abstracts and articles taken from various trade and scientific journals. The growing interest recently in a fundamental study of the sizing process has made it advisable to arrange this material and submit it for publication. Only such information has been included which is of special interest, or offers a new or fresh point of view on the various phases of the subject.

It is to be noted that the amount of space devoted to any one phase of the subject does not necessarily indicate its relative importance to the process; it denotes rather the amount of new or interesting material available. Furthermore, since conditions in different mills vary considerably and as the practice of sizing is not yet on a thoroughly scientific basis, there are many controversial points on the process; hence, some of the statements included are actually or apparently contradictory. However, suffi-



Cotton Warp After Sizing
Courtesy Prof. A. H. Grimshaw



Cotton Warp Before Sizing
Courtesy Prof. A. H. Grimshaw

cient information is given to enable one to judge the merits of the various claims. General acknowledgement is hereby made to all sources that have been consulted in preparing this paper, as individual acknowledgements were found not to be feasible because many of the references are anonymous or have not been retained. Wherever possible the matter is given in the words of the original writer, although the present writer has taken considerable liberty in arranging and modifying the material.

IMPORTANCE, FUNCTION AND PURPOSE OF SIZING

Importance.—The process of sizing or slashing of warps is one of the most important in a cotton mill and should be in charge of thoroughly competent men. The opportunity here for loss of profits is enormous. The importance of the process is easily estimated when it is considered that one slasher may supply warps for 300 to 500 looms. One hour of careless work in slashing may cause weeks of bad work, loss of production, increase in seconds, and disorganization of labor arrangement with consequent dissatisfaction in the weave room.

Function.—The primary function of sizing of cotton warps is to make the strength of the individual cotton fibers as effective as possible by cementing them together and secondary, to protect them against being rubbed up again during weaving. Unsized yarns under tension break partly by actual breakage of the fibers and partly by their slipping apart. In the sized yarn the fiber-cling or resistance to slip is greatly increased as a result of the cementing effect of the size. The strength of the sized yarn is still further enhanced by the surrounding film of size and the larger number of effective fibers, which offer greater resistance to breakage. It acts more as if it were a single large solid fiber. Although the strength of a thin layer or film of starch is only a tenth that of cotton, its effect on the strength of the yarn is much greater than its intrinsic strength might indicate due, as already men-

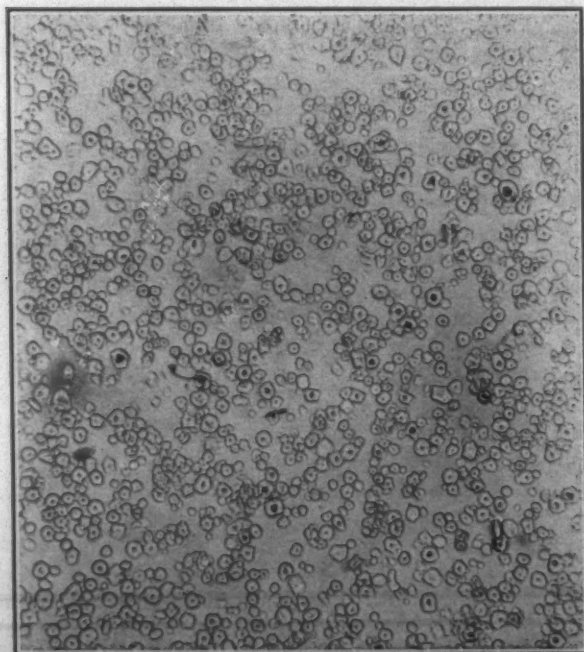
tioned, to the decrease in slippage and increase in effective fibers. Sized yarns are not only stronger but offer also greater resistance to rubbing, though there is a decrease in extension.

Purpose.—The ultimate purpose of sizing is to enable the process of weaving to be performed smoothly and uninterruptedly, without injuring the yarns or affecting adversely the subsequent processes of finishing. Specifically the effects of sizing are (a) to give to the yarn the necessary stiffness, strength, and elasticity in order to enable it to withstand the mechanical operations of weaving, and (b) to give the yarn compactness and smoothness in order to reduce frictional resistance during the mechanical operations of warping and weaving.

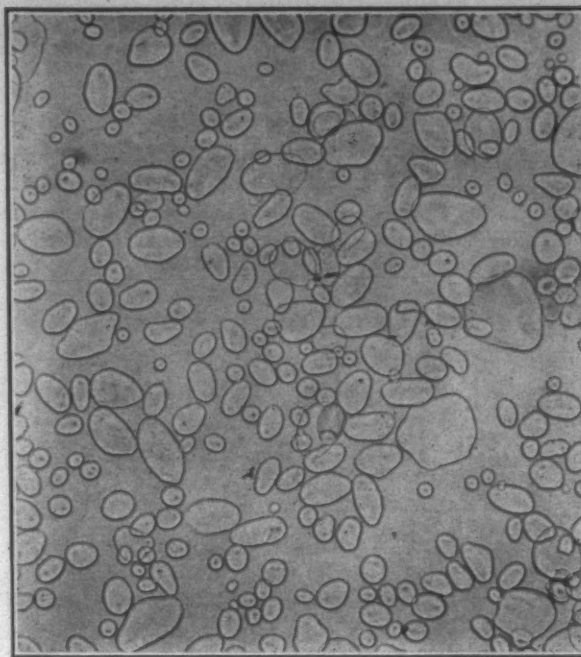
While in the loom, the warp has to withstand many mechanical influences, some of which act on the yarn internally and some on the surface. Those influences which act internally are (a) the tension given to the yarn in the loom, and (b) the motion of the reeds, which alternately slackens and strains the warp at regular intervals in driving the filling into the warp. The influences which act on the surface are (1) the eyes of the heddles through which the yarn passes, (2) the reed which moves forward and back along the yarn, and so rubs the surface, (3) the rubbing of the yarns one against another, and (4) the shuttle which rubs against that part of the warp over which it passes. Apart, therefore, from the normal strains imposed on the yarn, there are induced irregular tension-effects as well as a rubbing action; hence, the yarn must possess besides strength also elasticity and as smooth a surface as possible.

STARCHES AND GUMS

The qualities that give starch its usefulness as a sizing agent are (a) its ability to form a smooth film, (b) its adhesiveness, and (c) the high viscosity or thickness of its paste. A smooth non-scaly film tends to reduce rubbing friction; the adhesive properties of starch imparts



Corn Starch Granules



Potato Starch Granules

strength to the sized warp by cementing the fibers together; and the heavy or viscous body of the starch-paste enables the yarn to take up more size than it would from more fluid solutions. Thick and thin-boiling corn starches are mostly used in this country, followed in decreasing order by potato, sago and tapioca starches. Other agglutinants that are occasionally used, particularly for special effects are dextrins, locust bean gum, gum Karaya, and gum tragacanth. Attempts have been made recently to introduce sweet potato starch in sizing with indefinite practical results so far. It is stated that certain synthetic polymers (polyvinylalcohols), whose pastes yield uniform viscosities even upon prolonged boiling or violent agitation, have been recommended as suitable agglutinants for cotton warp sizing. These products are said to possess similar viscosity-characteristics as thoroughly cooked thick-boiling starch.

Corn Starch.—Corn starch granule is considered as a more or less homogeneous mixture of amylopectin (alpha-amylose), which is insoluble and very resistant to hydration, and a soluble adhesive material, known as amylose, with the preponderance of amylopectin on the outside of the granule but also with some distribution of it throughout. The ratio of amylose to amylopectin in corn starch is approximately 2 to 1. Corn starch granules have been measured from 14 to 26 or 28 microns with a number of granules much smaller and a few larger. It is stated that corn starch has a tendency to mildew and to give a harsh stiff feel to the yarn.

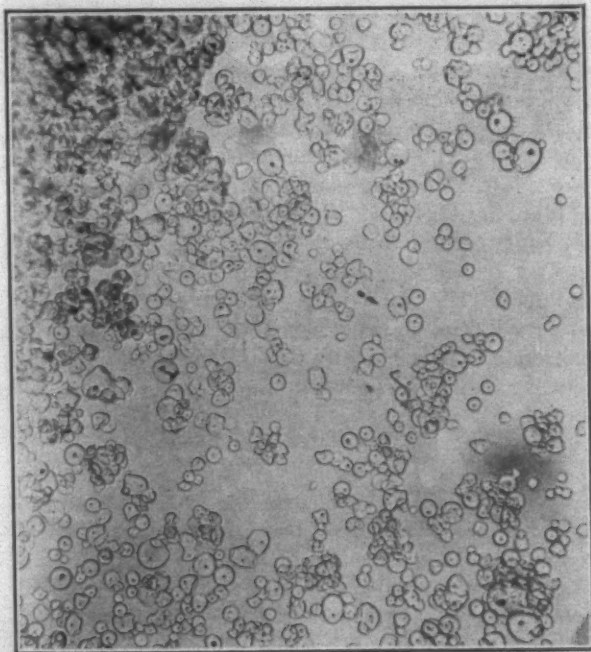
Potato Starch.—The granules of potato starch or farina are the largest of any of the starches known, with the exception of canna starch, and vary in size from 15 to 100 microns, depending upon their maturity. Potato starch forms semi-transparent pastes when boiled with water. It produces a smooth pliable yarn but has a tendency to give "soft" beams due to loss of strength. It is

stated that $\frac{1}{4}\%$ to $\frac{1}{2}\%$ of caustic soda added to the weight of the starch will reduce this tendency to "softening."

Sago Flour.—Sago starch or flour gives a paste having a comparatively low viscosity, with little tendency to drop on prolonged boiling. It is necessary, however, to boil sago for several hours in order to impart to the sized yarn the proper softness and pliability. The granules of sago starch measure on an average 10 to 60 microns.

One mill uses sago starch on print cloths and finds that it gives smooth and well running warps. It is cooked for 1 hour and 45 minutes. Another mill uses this starch on 64 x 60 construction, 2484 ends, 30s yarn, which was slashed with a sizing-mixture of approximately 1 pound of sago starch to 1 gallon of finished size, to which were added the necessary softeners.

Tapioca.—Tapioca or cassava starch produces a very thin paste on boiling and, like potato starch, loses strength with prolonged heating. It finds a greater application in finishing than in sizing. It is stated that tapioca gives a soft mellow feel to the yarn. One mill reports that it has



Tapioca Starch Granules

used tapioca exclusively for sizing with fair success. It is stated, however, that tapioca is not so uniform in quality from lot to lot as corn starch. At this particular mill, tapioca is cooked the same length of time and at the same temperature as corn starch.

Sweet Potato Starch.—The National Bureau of Standards has found that sweet potato starch can be used satisfactorily for the sizing of cotton warps. Several cuts of $13\frac{1}{2}$ s and 32s cotton warps were sized with this starch under mill operating conditions. No difficulties were encountered in the weaving operation and the finished cloth appeared equal to similarly processed cloth which had been sized with high-grade Irish potato starch. It is concluded that sweet potato starch is a decidedly promis-

ing material for use as a warp-sizing agent, particularly as a partial substitute for tapioca.

Thin-Boiling Starch.—Thin-boiling starches have proven advantageous over thick-boiling starches in shorter cooking time, added smoothness, and better penetration. Comparative tests on yarns sized with thin and thick-boiling starches seem to show that thin-boiling starch gives a greater increase in strength and also in weight than thick-boiling starch. This is explained by the fact that the thin-boiling starch penetrates the yarn better and is inside as well as on the outside of the yarn, whereas the thick-boiling starch covers only the outside. Another reason is that pastes of greater concentrations, without increasing the viscosity beyond a working limit, can be prepared with the thin-boiling starch. On an equal weight basis, however, the film-strength, adhesiveness, and weight take-up of thin-boiling starch are probably inferior to the unprocessed starch. For tightly twisted warps a thin-boiling starch is superior to a thick-boiling one on account of its higher fluidity and consequently better penetrating qualities. One weaver reports that with thin-boiling starch, the average increase in tensile strength of a certain yarn was 19.8%, which was 2% greater than that obtained with thick-boiling starch; there was also a 3% greater increase in weight (i.e., 16% instead of 13%) and half as many breaks on the looms.

Mill-Modified Starch.—Mills converting pearl starch with enzymes claim the following advantages over thick-boiling starch; increased weight of the warp yarn to the extent in some cases of changing the warp number as much as one number lighter, less shedding, weave-room sweeps materially reduced, no clogging of circulating-system pipes, freedom from lumps, absence of raw starch, cleaner cylinders, and greater ease of conditioning the warps for best weaving, as the converted starch seems to be more water-absorbent. On the other hand, there might be some difficulty in obtaining uniform fluidity and the expense of conversion is also to be considered.

One mill reports converting thick-boiling corn starch with aluminum sulphate. In this case 240 pounds of thin-boiling starch were replaced by 200 pounds of pearl starch boiled with one-half pound of aluminum sulphate. It is stated that the sodium salt of toluol sulphonchloramide is especially suited to the making of superior starch sizes. It is claimed that this chemical converts starches only to the soluble starch derivative, preserving the adhesive power of the original starch. For the usual run of cotton yarn, 1 pound of the agent is recommended for 100 pounds of starch in 125 gallons of water. The use of 1 pound of 28% acetic acid to 100 pounds of starch has also been recommended for modifying thick-boiling corn starch.

Dextrines.—Dextrines in themselves have little values as size since it takes much more weight when compared with starch to impart equal strength to yarn; this extra weight tends to reduce the elasticity of the yarn still further. However, the strong adhesive power of dextrine makes it a useful adjunct to size to correct the loss of adhesiveness of the starch due to the presence of fat or oil.

(To be continued)

The Effect of Sunlight on the Strength and Color of Fabrics

THE changes in strength and color of 35 cotton fabrics have been measured after each twenty-five hours of exposure to sunlight until five hundred hours of exposure have been reached, by the Research Department of the Texas Agricultural Experiment Station, and the results published in Bulletin No. 506. The fabrics studied were well-known brands, each in white, blue, green, lavender, and pink. It was found that the length of time for which the fabrics were exposed had the greatest effect upon the loss in strength and that temperature had greater effect than relative humidity. Results of this study suggest that where light fastness is desirable, it is not impossible to attain, nor unreasonable to demand, a minimum fastness, in dyed fabrics, of a hundred hours of exposure to sunlight before fading is perceptible.

Thirty-five white cotton fabrics and dyed cotton fabrics, including everfast gingham and suiting, Meadow Lane gingham, broadcloth, chambray, and Bluebird nainsook were exposed to sunlight under normal conditions of temperature and humidity for a total of five hundred hours. All fabrics were analyzed before exposure and after each twenty-five hours of exposure to determine changes in strength and color.

METHOD OF SAMPLING FABRICS

The specimens to be tested were chosen by a systematic random method previously devised and tested. Before exposures were made each fabric was marked with pencil and drawn threads to permit subsequent identification and location of each specimen in relation to every other specimen. Each specimen was marked with the number of hours of sunlight to which it was to be exposed. For testing in the warp direction each fabric was marked in columns 1 and $1\frac{1}{2}$ in. apart and in rows 7 in. apart. Each column contained five specimens and each row five groups of three specimens, each making a total of 75 specimens in the group. At least two other such groups, each containing 75 specimens, were placed consecutively length-wise of the fabric. Thus at least 225 warp specimens were tested from each of the thirty-five fabrics. For testing in the direction of the weft, the specimens were marked across the fabric perpendicular to the selvages. The columns and rows were marked in the same manner as for the warp specimens.

METHOD OF EXPOSURE

The marked sections of each fabric were fastened to beaver boards and exposed uncovered in a horizontal position upon the roof of a building. Exposures were made between 8:30 a. m. and 4:30 p. m. on sunny days only, and a total exposure of five hundred hours was obtained. A record was kept of the hours of sunshine, temperature, and relative humidity for each twenty-five-hour period, a sunshine recorder, a sling psychrometer, and a barometer being used for these determinations. Readings of temperature, humidity, and atmospheric pressure were made at half-hour intervals. Each speci-

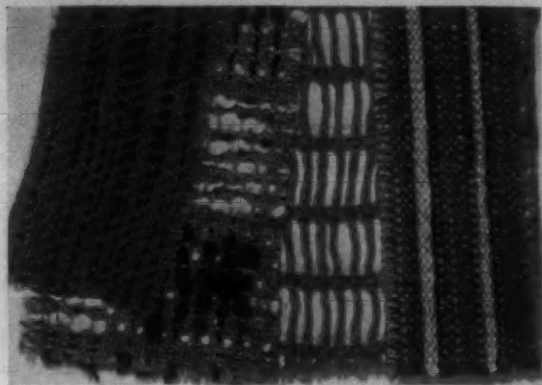
men was removed when the hours of exposure had reached the number with which it had been marked, was stored in the dark approximately one month and then tested. Twenty twenty-five-hour exposure periods were thus included in the five hundred hours. Before each specimen was removed from adjoining specimens, its width was determined by counting from the drawn thread the average number of threads in one inch of the fabric. The breaking strength of each exposed specimen was compared with the breaking strength of the unexposed specimens containing the same yarns. The average change in breaking strength of the various specimens for each exposure period was considered the true change in strength for that particular exposure period. These differences in strength were expressed in percentage loss or gain from the original.

Each of the fabrics underwent changes in strength and color. The rate and extent of change varied greatly among the fabrics. Some lost strength and color early in the exposure periods and continued to lose at a rapid rate while other fabrics had changed little in strength and color even after five hundred hours of exposure. The average loss in breaking strength of the warp plus that of the filling, of all fabrics was 41 per cent after five hundred hours. These losses ranged from approximately 18 to 49 per cent in the warp and from 34 to 65 per cent in the filling. The mercerization of the Everfast suitings and broadcloths probably increased their resistance to tendering. Sizes apparently had little effect.

Among the fabrics identical in structure, 8 of 15 dyed fabrics lost less strength than did the white indicating that the dyes used in all Meadow Lane ginghams and the blue, yellow, and lavender of the Everfast gingham offered protection. The blue in the suiting apparently had little effect. The dyes of the remaining six fabrics apparently increased the loss in strength. The fabrics of identical structure ranked in order of resistance to the tendering effect of sunlight are: blue, lavender, yellow and green (approximately equal), white, and pink. The blue dye of the suiting offered the greatest protection and the pink of the Meadow Lane the least. It was found that certain dyes were not equally fast when used alone and in combination with other dyes. These findings emphasize the importance of using dyes and combination of dyes which afford protection against tendering and fading.

The heavier, coarser fabrics were less tendered than the thinner, finer, fabrics, probably on account of the greater resistance to the penetration of light. Correlation analysis of the environmental factors shows that the number of hours of exposure had far more effect upon the loss of strength than had temperature and relative humidity. Temperature had more effect than relative humidity, accounting for approximately three times as much change as did relative humidity.

(Continued on Page 30)



Decorating Fabrics With Interesting Texture Treatment
(Reduced in Size)

Cottons In The Home

Perhaps no branch of the cotton industry has benefited more from styling than the interior decorating fabrics. Until the last year or so, gingham for kitchens and bathrooms, nets and allied materials for glass curtains, with jaspé for slip covers, comprised the range of cottons for the house, except of course for the chintzes and cretonnes. Now cottons are found at the windows of rooms furnished with priceless antiques or expensive modernistic furniture, not only in the summer, but all year 'round. Famous decorators specify cottons for curtains and upholstery from the bar in the cellar to the children's playroom in the attic—in town and country.

The group of swatches shown on this page are typical of cottons which will be used this summer and fall. On the extreme left is a heavy striped novelty homespun, with clever irregularities to simulate hand-loomed. In a natural, white, chartreuse, dark brown, olive green and yellow color combination this fabric is particularly liked for covering arm chairs and sofas. Next to it is a Spanish net in modern blue which can be used for draperies or for heavy glass curtains to go with cotton draperies. It has the appearance of heavy string. The broken check homespun is used for draperies or upholstery, and comes in several color combinations—dark brown, modern blue, red or chartreuse with natural and white. And at the extreme right is a novelty cotton upholstery fabric, with satiny rayon threads running through it irregularly. This is in a deep aqua-marine.

The trend for cotton draperies in these heavy homespun has developed a great demand for coarse textured glass curtains. Crochet mesh in white, natural and colors—ratine weaves with slub yarns running through them—all kinds of heavy nets with a string effect..

In the more expensive range of drapery materials, tapestry in solid colors is beginning to be in demand, a

(Continued on Page 20)

Dyers Lose no time trying

REDOXYVAT

The NEW DEVELOPMENT
that brings
REMARKABLE BENEFITS to *Vat Dyeing*

1. Prevents premature oxidation
2. Keeps vats in Leuco state 3 or 4 times longer.
3. Small quantity needed. From 10% to 20% on weight of dyestuff.
4. Saves on Dyestuffs
5. Better color values
6. No crocking effect
7. Increases concentrations. Certain dyes, normally 2 oz. to the gallon, now can be increased to 6 oz.

Send detailed request for further information

Onyx Oil & Chemical Co., Jersey City, N. J.

Specialists in Finishing Materials

Midw. Repr., Maher Color & Chemical Co., Inc., Chicago
Southern Repr., E. W. KLUMPH, Charlotte, N. C.

Onyx
LABORATORY-CONTROLLED

**PROCESSING
& FINISHING
COMPOUNDS**

FOR MILL WALLS

SHERWIN-WILLIAMS



SAVE-LITE

THE PLANT CONDITIONING PAINT

Setting The Comber

Third in a Series of Articles

By W. O. Rivenbark

Rowan Cotton Mills, Salisbury, N. C.

I HAD once been on a job only about two weeks when the general overseer told me to change four combers for a different staple of cotton. I did this and was to take out 15 per cent noils. I set the combers for the desired percentage of noils, but only got out about 9 per cent. I pulled back the cushion plate far enough to take out 25 per cent, but got no better results. I then examined the combers and found the half laps were off. On some of them I could get in all four leafs of a card gauge and the setting would still be loose. Others were worse. The cushion plates and half-laps were so badly off that I would get about 10 per cent, 11 per cent, 15 per cent and in some cases 20 per cent noils out. I reset the combers and did not have any trouble getting out the desired percentage of noils. There were three other fixers in this same room but they had failed to set the combers correctly.

Under such conditions the superintendent will sometimes suggest that more noils be taken out to bring his yarn up to the desired quality. If the combers are not correctly set, you may take out 20 per cent noils and still have a low quality yarn. I sometimes say that it is not the percentage of noils you take out so much as how you comb the cotton to get good quality yarn. You certainly have to comb the cotton properly if you desire to get quality yarn. Setting the half-lap correctly is one point in making good yarn, but this alone will not produce the desired results.

If the half-laps are set right, it means that you have a good turf for piecing, but if improperly set, it means a poor turf for piecing. If half-laps have hooked needles they will produce neps in the sliver. By hooked, I mean that the points of the needles have hooks on them caused by being hit with lumps or something else that cause the points to turn back. If a half-lap is not cleaned properly by the brush, it will also produce neps.

I have only given an outline of what could be said about the half-lap and its work.

SETTING BRUSHES TO THE HALF-LAP

There are two kinds of brushes, the solid brush and the split brush. I prefer the split brush. You can have it refilled over and over again and the wire that is used holds better than the glued brush. The solid brush is built with glue to hold the brush. The split brush is easy to put on and you do not have to take out the shaft to replace worn brushes, which has to be done with the solid brush.

There is a correct way to put brushes on. The brush has a pulling side. Some fixers think it can be put on any old way, but if it is not put on correctly. If you

have a sense of feeling you can tell the pulling direction of the brush. The brush should be set so the tip of it will touch the brass bars of the half-lap. Jamming a brush against the bars will injure it. In selecting a brush, pick one that has life so it will flip the noils off of the half-lap.

The speed of the brush should be about 4 r.p.m. to one of the half-lap. If the speed of the brush is too high, you will have some trouble when you put on new brushes. It will cause a draft and the aspirator will not suck the noils as it should. The suction will be upward and it will look like the aspirator is clogged. A brush that is cut too long will do the same thing. It will create a suction stronger than that of the fan, but when you have this trouble it is easy to remedy.

Worn brushes will allow neps to go into the sliver. They lack life to flip off the noils. Sometimes a brush that is about half worn away can be buffed and evened up and run a little longer. I have gotten pretty good results from brushes that had been trimmed, but if they are not put back exactly as they were taken off they will last only a short time.

SETTING CUSHION PLATES

Mistakes are frequently made in setting the cushion plates. This is a very important setting for good combing, good piecing and getting the desired percentage of noils.

If you fail to have all cushion plates set alike, you cannot expect to get the desired results. If they are not all set the same, the noils will be thick and thin, causing variations in the work from the combers on through the mill. The plates determine the percentage of noils that will be taken out. If some are set at 11, some at 12, some at 10 and others at 9, noils will be uneven and the ends that are on the table will not be the same weight and, of course, the delivery from the draw box will vary some. They should all be set the same distance from the steel roll and then all will take out the same amount of noils and variation will be reduced.

I was once in charge of combing in a mill that operated 84 combers. The general overseer of carding insisted that there was too much variation in the work from the combers. I checked over the machines and found that no two of the cushion plates were set alike. By the end of the month, when all cushion plates had been set correctly, the mill was making real yarn.

In determining the proper settings, turn the comber to index 19, then divide the distance between the two set screws on the piecing arm that moves the plates and pull all the plates to a 12 gauge. You are then on half-

way ground and can go four points each way. From 12 to 16 is 4 points and from 12 to 8 is 4 points.

The distance from the cushion plates and the steel roller will determine the amount of noils taken out. The closer the setting the smaller the amount taken out and the more open the setting, the more noils will be taken out.

Any comber will, of course, vary some each way and you need not be alarmed about the percentage taken out. If you are taking out 14 per cent noils this week, when you check next week you may be getting 16 per cent. If there is a greater percentage of short staple than usual, more will be taken out. My advice is not to keep changing the percentage. It will take care of itself after the batch of short staple goes through and come back to normal. If you let the short staple go into the yarn, it will lower the breaking strength.

Using a step gauge, you will find that the following gauges will give you the percentage of noils taken out, on fair cotton, as follows: 12-gauge, 14 to 16%; 13-gauge, 16 to 18%; 14-gauge, 18 to 19%; 15-gauge, 19 to 21%; 16-gauge, 22 to 25% (the latter is pulling away from the rollers); 11-gauge, 12 to 13%; 10-gauge, 10 to 12%; 9-gauge, 10 to 9%. When you set to an 2-gauge, you will have to scratch comb as the top comb will hit the nippers. Scratch combing is where you lift the top comb and let the half-lap do what combing is done.

When you do this, you can bring the noils down as low as one per cent. I have heard some men say this

cannot be done and I don't suppose they have ever taken out as little as one per cent. As I have said before, if you know a comber you can do real work, but if not you will stay in the same old rut you learned in. Sometimes an overseer will stay so long on one job that he just lets things go any old way and will never get the best results.

Imports Found 58% From Japan

Washington.—The full extent of Japanese dominance of the American market for foreign cotton goods was disclosed for the first time by the Commerce Department.

Officials disclosed that the Japanese undercut prices of other nations sufficiently to sell American importers 58 per cent of all cotton cloth imported during the first four months of the year.

The same figures showed that only 27 per cent of the total amount paid for imported cloth during this period went to Japan. Thus foreign exporters of 42 per cent of the goods marketed in this nation received 73 per cent of all the money paid out.

The figures showed that 3,170,000 of the 5,903,000 square yards shipped into American markets during April were sent from Osaka Yokohama, and other Japanese ports. Of the 27,433,000 square yards received during the first third of the year, 15,941,000 came from the Japanese mills and factories.

During April, only 24 per cent of the amount paid for these goods went to Japan and during the fourth month period the amount was 27 per cent.



One Barrel of *Caro-Gant* Replaces Three Barrels of Sizing Compound

Composition.—Caro-Gant is a pure, one-piece Warp Dressing with all objectionable features eliminated. Guaranteed 99.6% active ingredients, contains no water, metallic chlorides or other salts.

Effectiveness.—Caro-Gant in the size box sets the standard for clean slashers and looms, quality cloth, and high weave-room production.

Economy.—Being almost 100% pure, it goes further—1 pound of Caro-Gant will replace 2 to 4 pounds of other sizing compounds, at a considerable saving in slashing-costs.

Other Special Features.—Produces a smooth, strong and flexible yarn. Retains the viscosity of the starch-paste upon standing over night or even over the week-end; mixes readily and uniformly with starch-paste; and is quickly and completely removed in de-sizing.

Write for a demonstration, which puts you under no obligations.

Demonstrators:

E. I. BERNBAUM
384 RIVERWAY
BOSTON, MASS.

JOSEPH DIAZ
BOX 518, BARK ST.
SWANSEA, MASS.

CHAS. C. CLARK
BOX 274
SPARTANBURG, S. C.

TALLEY W. PIPER
BOX 534
FAIRFAX, ALA.

LEWIS E. UNEUH
BOX 1602
CHARLOTTE, N. C.

Reprints on "Notes on Cotton - Warp Sizing" gladly sent gratis upon request.

HART PRODUCTS CORP. 1440 BROADWAY
NEW YORK, N. Y.

Personal News

W. H. Conner has resigned as overseer spinning, Plant No. 1, Chadwick-Hoskins Company, Charlotte, N. C.

P. W. Pollard has resigned as superintendent of the Woodside Mills at Fountain Inn and Simpsonville, S. C.

W. H. Gibson, Jr., has resigned as general superintendent of the Mansfield Mills and Jennings Cotton Mills, Lumberton, N. C.

W. G. Lockey has been promoted from second hand to overseer spinning at Chadwick-Hoskins plant No. 1, Charlotte, N. C.

Fred L. Heyes, formerly general manager and superintendent of Pisgah Yarn Mills, Inc., Brevard, N. C., has become superintendent of Spencer Mills, Inc., Spindale, N. C.

W. J. Duggan, for the past two or three years superintendent of Spencer Mills, Inc., Spindale, N. C., and before that, with Chadwick-Hoskins Company of Charlotte, has accepted a position in the merchandise development division of Sears Roebuck & Co. of Chicago, Ill., and took up his duties three weeks ago.

S. M. Sheham, second hand, has been promoted to the position of overseer weaving, Grace Mills, Rutherfordton, N. C.

L. M. Carpenter has resigned as general manager of the Drayton Mills, Spartanburg, S. C. He had been with the company a year, going there after having been with the Spencer Corporation in Spindale, N. C.

J. W. McGraw, formerly overseer weaving, Grace Mills, Rutherfordton, N. C., has become overseer weaving at the Avondale plant of Cliffside Mills, Avondale, N. C.

C. W. Byrd, who until recently was secretary and treasurer of the Locke Cotton Mills, Concord, N. C., has been elected to a similar position at the Davidson Cotton Mills, Davidson, N. C.

O. G. Morehead has resigned as superintendent of the Santee Mills, Bamberg, S. C., to become general superintendent of the Mansfield Mills and Jennings Cotton Mills, Lumberton, N. C.

R. T. Stutts has resigned as overseer carding at the Lockhart plant, Monarch Mills, Lockhart, S. C., to become superintendent of the Woodside Mills at Simpsonville and Fountain Inn, S. C.



N. C. State College Textile School

The commencement address will be delivered by Dr. Bennett E. Geer, president of Furman University, and a former president of the Judson Mills and the American Cotton Manufacturers' Association.

Forty-seven young men and two young women who have completed the Textile School requirements will be awarded degrees. This is the largest graduating class in the history of the school.

The accompanying photograph shows a part of this year's graduating class. Those in the picture are:

Bottom row, reading left to right: R. G. Hodgkin, Jr., Wilmington; G. A. Holt, Burlington; D. A. McCannless, Asheville; C. B. Knight, Durham; O. S. McCullers, Durham; T. M. Jenkins, Roanoke Rapids; J. K. Bruton, Mt. Gilead; L. M. Howland, Henderson; W. E. Moser, Monroe; W. L. Mills, Apex.

Second row: J. R. Chapman, Dover; H. H. Latham, Washington; W. F. Gaston, Belmont; A. N. Gee, Shelby; H. A. Rollins, Shelby; W. L. Craven, Sanford; Thomas Nelson, Dean of Textile School; W. P. Banner, Greensboro; E. H. Dennings, Albemarle; R. C. Going, Fieldale, Va.; R. L. Rogers, Oakboro; J. D. Moore, Henrietta.

Back row: R. H. Lewis, Jr., Oxford; R. B. Murdoch, Salisbury; A. L. Baker, Jr., J. T. Baker, H. H. Mayo, Raleigh; R. D. Garner, Newport; E. M. Wiseman, Danville, Va.; I. B. Covington, Jr., Wadesboro; E. G. McIver, Durham; Virginia Reinheimer, Raleigh; B. H. Bloch, New York; A. E. Shumate, Leaksville; Eleanor Greene, Raleigh; G. R. Bellamy, Wilmington; R. H. Kunkel, Pulaski, Va.; James Lathan, Monroe; S. A. Ward, Lumberton; J. Irving Roy, Westmount, Canada; J. R. Hill, Greensboro; M. S. Spruill, Mt. Olive.

Personal News "COILED DOUBLE"

Brumley D. Pritchett is now overseer of weaving No. 1 at the Georgia-Kincaid Mill No. 1, Griffin, Ga. He is a graduate of the A. A. French Textile School, Georgia Tech, class of 1930.

Frank Arnall has been named president of Arnco Mills, Newnan, Ga., succeeding the late Alton W. Arnall, it was announced. Other officers: R. D. Cole, board chairman; Bryan Blackburn, vice-president, treasurer; Raleigh Arnall, assistant treasurer; T. A. Caston, general manager; A. E. Fleming, secretary.

Thomas H. Webb, of Concord, who recently resigned as president of the Locke Cotton Mills, has been elected president of the Davidson Cotton Mills, Davidson, N. C. Martin L. Cannon, who has been president, will hereafter be chairman of the board. Mr. Webb is one of the best known cotton manufacturers in the South and last month completed a term as president of the American Cotton Manufacturers' Association.

W. N. Banks, of Grantville, Ga., who is president of the Grantville Mills, McIntosh Mills, Newnan; sales manager of the Habersham Mills, Habersham, and president and treasurer of the Moreland Knitting Mills, Moreland, was elected president of the Cotton Manufacturers' Association of Georgia, at its recent annual meeting. Paul K. McKenney, vice-president of the Swift Manufacturing Company, Columbus, was elected vice-president; Fuller E. Callaway, president Callaway Mills, LaGrange, was elected treasurer, and T. M. Forbes, Atlanta, re-elected secretary.



W. N. Banks

R. O. Arnold, president of Covington Mills, at Covington, was elected to succeed Fuller E. Callaway, Jr., on the Board of Directors, and Albert T. Matthews, of Thomaston, was elected a lifetime member of the Board, an honor which has never before been conferred upon another member of the Association.

CLINTON STARCHES

FOR ALL TEXTILE PURPOSES

Manufactured by

Clinton Company

CLINTON, IOWA

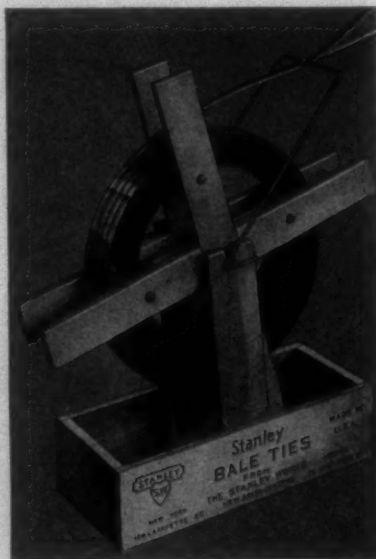
QUALITY

SERVICE

Stanley Bale Ties "Coiled Double" offer many time and labor saving possibilities for the operator. Two lengths can be uncoiled, measured and cut in half the time required for coiled single.

Round Safety Edges and Round Safety Ends eliminate the possibility of dangerous cuts and scratches to the operator.

The following additional features have been responsible for many mills standardizing on the Stanley Bale Tie System:



• Rust-resisting
Japanned Finish

• The Stanley Round
End Cutter

• Exceedingly strong
Sealed Joints
that lie
perfectly flat

• The Stanley Sealer
which exerts
super-pressure

Let us show you the superior features of this system

THE STANLEY WORKS
New Britain, Conn.

Atlanta Office:
THE STANLEY WORKS SALES CO.
552 Murphy Avenue
Atlanta, Ga.

Carolina's Representatives:
CORREY LYNCH
P. O. Box 1284
Charlotte, N. C.

STANLEY BALE TIE SYSTEM
TIES - - - - SEALS - - - - SEALERS

45-Gauge Machines Lead Installations

More than 79 per cent of the full-fashioned hosiery knitting machines installed in 1935 were of 45-gauge construction and 15 per cent were 42-gauge, combined installations of 48, 51, 54 and 39-gauge machines accounting for a little more than 5 per cent, according to the 1936 Statistical Folder of the Textile Machine Works, Reading, Pa.

Approximately 15,300 full-fashioned machines were in place in the United States in 1935, the Folder notes. Of this total approximately 50 per cent were 42-gauge, more than 25 per cent were 45-gauge, approximately 18 per cent were 39-gauge, about 4 per cent were 48-gauge, 3 per cent 51 and 54-gauge and about 1 per cent 36-gauge.

45% TO N. C. IN 1935

In percentage of the total the number of 42-gauge machines in place showed a very slight decline from 1929 to 1935, 45-gauge increased sharply from a little over 10 per cent to more than 25 per cent, while 39-gauge declined from approximately 33 per cent to 18 per cent. The percentage of 48-gauge remained constant over these years, that of 51-54-gauge showed a slight increase, while that of 36-gauge decreased.

Of the total 1935 shipments of "Reading" machines 45 per cent went to North Carolina, 25.2 per cent to Pennsylvania, 12.2 per cent were exported; 7 per cent went to New England, New York and New Jersey, 6 per cent to the West and 4.6 per cent to "other South."

80% OF OUTPUT 45-GAUGE

Approximately 80 per cent of the 1935 production of "Reading" machines were 45-gauge in 1935, about 15 per cent were 42-gauge, and the remaining 5 per cent were divided among 51-54 and 48-gauge. Approximately 70 per cent of these machines were 24-section, and about 27 per cent were 20-section.

Of the 317 full-fashioned mills in this country last year 24 per cent were in Philadelphia, 29 per cent in other Pennsylvania, 11 per cent in North Carolina, 12 in other South, 15 per cent in New England, New York and New Jersey and 9 per cent in the West, according to the Folder.

Charts are also presented on hosiery production, stocks, imports, exports, etc.

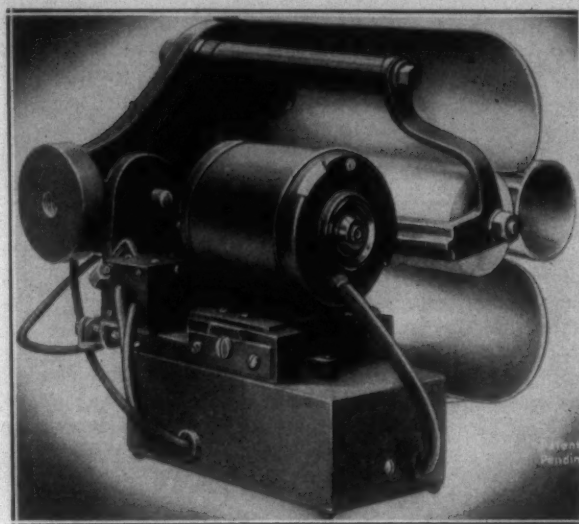
Butterworth Announces Electric Guiders

H. W. Butterworth & Sons Co., who for more than 20 years have made air operated guiders, exclusively, have announced that they will now market electrically operated guiders. It has been rumored in the trade for a few years past that Butterworth was experimenting with electric guiders; however, the announcement that these guiders were ready for the market was not made until this week.

The new electric guiders are described as being motor operated and having a contact switch which requires 30 grams to operate. The switch operates in a vacuum, and is said to be good for 100,000,000 operations. The make and break mechanism of the switch requires a movement of less than one-fiftieth of an inch.

In speaking of their new electric guider, J. Ebert Butterworth, executive vice-president of the company, said: "Our experiments with electric guiders go back prob-

We finally decided that we could use a motor for this work provided that a contact could be developed which would stand up for years without the need for replacement. Our specifications for the motor, too, were severe. Because of probable carelessness in neglecting to turn off electrical apparatus, we required that motors must be able to stand in stalled position for at least 30 hours ably ten years during which time we have tried out practically every type of electro magnet, solenoid and contact switch. At least 20 different models have been made.



Butterworth Electric Guider

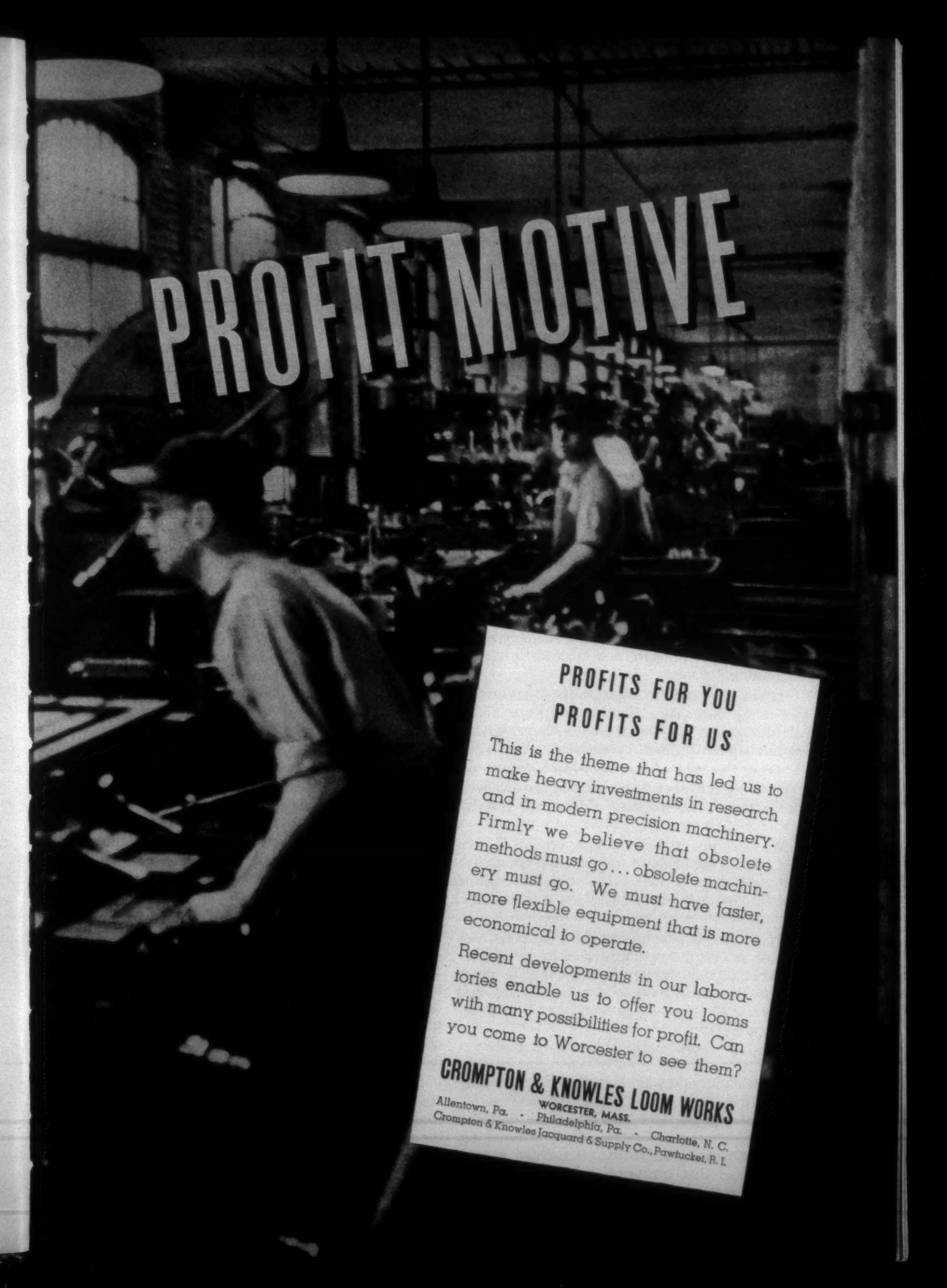
with full current on. At the same time, the motors must be fully enclosed for wet work, and must be of a type which did not have brushes or armature windings. Brushes would wear out in time, and armature windings might burn out—especially if the motor were to be left in a stalled position for several hours.

"Our specifications for motors were finally met, and work on the contact was proceeding satisfactorily. It was our desire to use the brass and rubber roller principle which had proven so satisfactory in our air guiders. These guiders usually operate best at about 15 pounds air pressure. This is sufficient to nip the cloth the second that it gets out of line.

"In our new guiders, we felt that if possible, we should improve over our air guiders by allowing the operator to vary the pressure of the nip instantly if necessary. We also felt that some arrangement should be made to take care of seams as they passed through the rolls. Both of these features are incorporated in our new electric guiders.

"It was also our feeling that since we had marketed thousands of air operated guiders, that these should not be made obsolete by our electric guider. With this idea in mind, we designed our new guider so that by drilling of four holes, any of our air guiders could be changed over to electric guiders.

"Naturally before offering the new electric guiders to the trade, we tried them out on voiles, organdies, khaki and heavy duck. The results of these tests surprised even us. The cost of their operation averages but five cents for ten hours, and their maintenance cost for an equivalent of 34 months, has been but ten cents."



PROFIT MOTIVE

PROFITS FOR YOU PROFITS FOR US

This is the theme that has led us to make heavy investments in research and in modern precision machinery. Firmly we believe that obsolete methods must go... obsolete machinery must go. We must have faster, more flexible equipment that is more economical to operate.

Recent developments in our laboratories enable us to offer you looms with many possibilities for profit. Can you come to Worcester to see them?

CROMPTON & KNOWLES LOOM WORKS

WORCESTER, MASS.
Allentown, Pa. - Philadelphia, Pa. - Charlotte, N. C.
Crompton & Knowles Jacquard & Supply Co., Pawtucket, R. I.

TEXTILE BULLETIN

Member of
Audit Bureau of Circulations and Associated Business Papers, Inc.
Published Every Thursday By

CLARK PUBLISHING COMPANY

Offices: 118 West Fourth Street, Charlotte, N. C.

Eastern Office: 434 New Industrial Trust Bldg., Providence, R. I.

DAVID CLARK	Managing Editor
D. H. HILL, JR.	Associate Editor
JUNIUS M. SMITH	Business Manager

SUBSCRIPTION

One year, payable in advance	\$2.00
Other Countries in Postal Union	4.00
Single Copies	.10

Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

Who Is To Blame?

SOUTHERN mill men are getting sick and tired of being blamed for many things for which they are not entirely, if at all, responsible.

Reports from the New York markets are crying critically of the impotent and slovenly methods of Southern mills in their manufacturing and marketing policies.

It is a good time to analyze the situation and see if the New York markets and some of the market papers are not more to blame for the situation than the mill executives.

About this time of the year New York market reports begin to set up an alarming cry of "over-production," "no market," "distressed prices," until all of the trade is thrown into a panic.

Whether intentionally or not, buying is stopped. Mills are made to feel that something awful has happened, that prices must be reduced and that every known principle of good business be violated.

The result is chaotic market conditions, distressed prices and resultant confusion. Either intentionally or unintentionally, this is done. The market sinks to new lows, buyers buy and then raise the markets by new strategy and reverse publicity.

The New York market knows and those responsible for market reports know that compliance with hour and wage standards in the industry is at least 90 per cent and yet new stories and rumors come from here and there that the whole plan for co-operative effort is breaking down—that hours are being lengthened, wages reduced and that confusion exists in the man-

ufacturing centers. Anyone should know that such reports are not true. Such gossip smacks of insidious propaganda intended to disrupt every sensible effort toward self-regulation that has been made.

Some of these reports go further and state that the whole plan is fantastic and theoretical and that only State or Federal legislation can provide effective control.

This network of rumors certainly appears as another effort to demoralize the market so that "shrewd buyers" can take advantage of the situation.

We all know that imports of cotton goods are a serious threat to the market, but New York reports have rung the changes on these reports until the market has become almost completely demoralized by the attendant publicity.

As bad as these importations are, they should have never exerted such a baneful influence upon the market as many buyers have indicated. There has grown up an hallucination of fear and panic and mills have become jittery in their manufacturing and sales policies. While there is some basis of fact in every market scare, these elaborated rumors disturb the mill men until they become uncertain in their policies.

Even though certain tariffs changes have been made and other measures are being tried that promise to gradually reduce importations, propaganda still emanates from the market to frighten mill men. This may sound like an unfair charge, but the evidence and influence seem marked and intentional.

Now one more charge against those whose influence tends to create a buyers' market. It is a known fact that less than 10 per cent of the spindles in the industry have deviated from either the hour or wages standards of the prevailing policy. The reason for this deviation seems to lie in the pressure applied in the markets. Competition became so keen and prices were hammered so hard that some mills yielded to the pressure.

No mill man has yielded willingly, gladly or approvingly, but the market has pressed so hard that some manufacturers have become desperate. Thus it appears fair to say that whatever deviation from recognized co-operative principles has occurred, it has had its origin and necessity in the market situation and not in the local area.

It might be a good idea for the market to look closer home for some of the blame that it has thrown so freely and so volubly in the laps of the mill men. It might be that some assistance in curing some of our oft-mentioned "textile ills" could be found in the market and that these

cures would stimulate a wholesome adjustment in the manufacturing centers.

We are not attempting to place all of the blame upon certain market factors, but this analysis indicates enough blame for the market to look well into its own housekeeping before attempting to clean house for the mills.

Marketing and manufacturing must move together and as market thinking seems to dominate the thinking of both, the market should be more careful of its influence and intentions and should not attempt to frustrate the actions and demoralize the minds of cotton manufacturers for their own advantage.

Textile Graduates

THE following item appeared in North Carolina newspapers last week:

Thomas Nelson, dean of the State College Textile School, announced yesterday that this year's textile graduates, 49 in number, had already secured jobs and would assume their duties following the 44th commencement exercises Monday evening, June 8th.

Although we have not seen the statements, we have no doubt that the same situation exists at the textile schools at Clemson, Georgia Tech and Auburn.

The superintendents and overseers of the future and to a considerable extent the mill presidents and treasurers will be textile graduates and the ambitious young man in the mills should make every effort to attend a textile school.

Such young men should not hesitate to borrow the money to pay their college expenses and the management of many cotton mills will, no doubt, be willing to loan the necessary amount to the sons of their employees provided they can be assured of repayment after graduation.

The cost of attending the textile school at North Carolina State College, Raleigh, N. C., is approximately as follows:

Tuition	\$ 80	(Out of State students \$160)
Fees	96	
Room	48	
Board	135	
Books	20	
Total	\$379	

To this, of course, must be added laundry, transportation and incidental expenses.

Under North Carolina law any student, including out-of-State students, can give the college notes for each year's tuition, such notes to be payable over a period of years after graduation. Such notes require two endorsers.

We have not the listed expenses at Clemson, Georgia Tech or Auburn, but they are approximately the same as those at N. C. State College, and all of our textile schools are excellent.

If a textile student gives the college a note for each year's tuition it will require about \$300 each year to meet other college expenses. We feel sure that many cotton mills would loan all or a considerable portion of that amount to some ambitious young man, among their employees, and thereby give him a chance to better equip himself.

An Excellent Program

THE Southern Textile Association is particularly fortunate this year in having secured three of the leading textile men of the country to speak at its annual convention in Blowing Rock, N. C., on June 19th and 20th.

Donald Comer, president of the Avondale group of mills and president of the American Cotton Manufacturers' Association; Robert R. West, president of the Riverside and Dan River Mills, and Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, are nationally known leaders of the industry. Their presence at the convention and their addresses are sure to be of particular interest to all textile men as well as the membership of the Association proper. Each of them not only has the viewpoint of leadership in the industry, but also a sympathetic and appreciative understanding in the work that is done by the men who make up the membership of the Association.

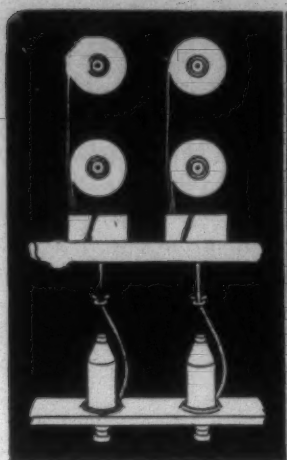
With these men as guest speakers and the address by John A. McFalls, president of the Association, the convention is assured of one of the finest programs in its history.

Blowing Rock is generally recognized as one of the most delightful mountain resorts in the country. The variety of entertainment offered visitors makes it certain that every one attending the convention is assured of an enjoyable visit.

The program for the twenty-eighth annual convention of the Association and the interest already being shown justifies the belief that the attendance will be very large.

Textile Bill Safe

"Textile Bill Safe, Declare Sponsors," headlines the *Durham Herald*. Oh yeah! Safe as old wheat in the barn, as pigs plowed under by AAA or as the Guffey soft coal act?—*Greensboro Daily News*.



**DONT
LOSE
money
Twisting
from
Spools**

**Use the
ABBOTT SYSTEM**

write and see why

to **ABBOTT MACHINE CO**
WILTON, N.H.

Nuform Check Straps



Patent No. 1863271
July 14, 1932

Patent No. 1993531
March 5, 1935

WHEN YOU DECIDE TO



**BUY THE
BEST
BUY
Nuform**

Manufactured Only By

**SLIP-NOT BELTING
CORPORATION**

Kingsport,

Tennessee

Mill News Items

BURLINGTON, N. C.—At the Foster Hosiery Mills, four additional full-fashioned machines and equipment, representing an investment of \$50,000, are being installed. This mill is owned by Charles F. Foster, of Burlington.

ATHENS, ALA.—Machinery and equipment of Athens Yarn Mills, Inc., spinners of cotton yarns, was sold at public auction by Samuel T. Freeman & Co., auctioneers, May 27th, a total of \$15,000 being realized. Machinery was sold piecemeal to a number of buyers.

WINCHESTER, VA.—For the first time in its history, shares of common stock of the Virginia Woolen Company were sold at public auction here recently, a total of 55 shares being moved. The first block of five shares brought a top price of \$96 per share. Three other lots of 15 shares, each, brought \$90.50 per share.

LUMBERTON, N. C.—The National Cotton Mill has been ordered resold here June 11th. Pates Supply Company of Pembroke offered \$26,700 May 14th, \$4,070 higher than a first offered by N. B. Hill of Roseboro on April 8th.

CLEARWATER, S. C.—An addition to the finishing plant of the Clearwater Manufacturing Company here will be built in the near future, it was announced. Contract for the job, costing about \$12,000, has been awarded to Galivan Construction Company of Greenville, S. C. Work will be started immediately.

REMERTON, GA.—The Strickland Cotton Mills have completed installation of 45 Saco-Lowell spinning frames and 2 Saco-Lowell slubbers. Three additional slubbers are to be installed by the mill at an early date. One additional slasher is being installed.

GREENVILLE, S. C.—Dividends totalling about \$37,000, to be paid by July 1st, were voted at a meeting of directors of Dunean Mills at the mill office here.

The directors declared a 2 per cent dividend on common stock, amounting to \$27,000, and a dividend of \$1.75 a share on preferred stock, amounting to about \$10,000. The common stock dividend will be paid June 1st and the preferred dividend July 1st.

STATESVILLE, N. C.—The Duchess Fabrics Corporation, manufacturers of jacquard novelties, has begun the construction of an addition to the plant. This addition will measure 80x50 feet and will add one-third more space to the present plant. The company now has 186 looms. Details have been worked out for the construction of about six new dwellings, the total number of houses needed being 20.

KNOXVILLE, TENN.—Although Knoxville Knitting Mills is offering some machinery for sale, that does not mean the plant will close, Manager Wilson explained.

"It is true that we are to sell some machinery, but we are still operating and we may continue," he said. "I can not say for certain at this time just what will be done." The mills have been in operation for 43 years, developing a national market for Knox Knit hosiery.

Mill News Items

LIBERTY, N. C.—The Liberty Mills have been incorporated by W. P. Harder, B. F. Coleman and H. R. Stanley.

DECATUR, ALA.—A \$180,000 building program is under way here and includes a \$35,000 addition to the Alabama Hosiery Mills and a \$15,000 addition to the plant of the Cooper-Wells Company Hosiery Mills.

BURLINGTON, N. C.—A new knitting company, incorporated at the Hazel Knitting Mills, has been organized here by W. Stafford Foster. The plant will be located in the building originally used by the Foster Hosiery Mills. The plant will begin work with four Reiner full-fashioned machines and is expected to be in operation in July.

GREENVILLE, S. C.—Work of repairing the New Holland plant of the Pacolet Manufacturing Company at Gainesville, Ga., seriously damaged in the tornado early in April, will be completed in two or three weeks. Over \$750,000 is being expended on repairs to the mill.

Fiske-Carter Construction Company of Greenville have the contract to repair the mill. More than 800 are now engaged in the rebuilding program there.

Burlington Mills File Counterclaim

The Burlington Mills Co., Inc., of Burlington, N. C., sued as the Burlington Mills, interposed a counterclaim for \$200,000 damages for alleged unfair competition in an answer filed in the U. S. District Court, New York, to the action instituted by the Pacific Mills and Silas Kendrick Everett for alleged infringement of patent rights.

The complaint, which also names Hablo & Solomon, Inc., selling agents for the Burlington Mills Co., Inc., as codefendant, is based on alleged infringement of a patent bearing the serial number 2,005,539 but the defendants deny infringement and charge that the patent is void for lack of invention and claim that prior German and British patents, as well as articles published in the *Textile World*, *Rayon Record*, *Jentgen's Rayon Review* and other publications made disclosures embraced in the patent claims.

It is also alleged that yarns which are the subject matter of the patent were manufactured and sold by the Mooresville Cotton Mills and the Fitchburg Yarn Company prior to the issuance of the Everett patent and that the latter "surreptitiously or unjustly obtained the patent" by filing specifications in the patent office which told "less than the whole truth relative to the invention."

The complaint bases its counterclaim on the ground that the plaintiffs wrote letters to the trade, particularly to concerns who have purchased fabric made from the yarn which is claimed to infringe on the plaintiff's patent, threatening suits for infringement.

The defendants allege that the intent and purpose of the letters to the trade was to intimidate customers and prospective customers of the defendants and deter them from purchasing fabrics put out by the defendants and that the effect was to frighten such concerns from doing business with the defendants.

The defendants seek a decree under the declaratory judgment act holding the plaintiff's patent invalid and not infringed, an award of \$200,000 damages, and an injunction restraining the plaintiffs from issuing notices to the trade and from giving "publicity to this suit."

KROMOAK

One Ply Oak and One Ply Kromatan
Combination Leather Belt

**Cuts
Production
Costs**

**in the Spinning and
Weave Rooms**

—because it hugs the pulleys, delivers the maximum
in power, and wears longer than regular oak belting.

*Let Us Quote You On Your
Requirements*

Charlotte Leather Belting Co.

CHARLOTTE, N. C.

Makers of a Complete Line of Leather Belting

To insure PERFECT—UNIFORM—SOFT—
BOBBINS on your Flyer Frames, use
THE NORLANDER FLYER PRESSER

For 35 Years Highest in Quality—Lowest in Price

The Norlander Machine Company

Gastonia, N. C.

New Bedford, Mass.

With years of service and experience to hundreds of Cotton Mills all over the United States we offer you the best Skilled Workmanship in repairing, Flyers, Spindles of all kinds, Steel Rolls, Twister Rolls and Drawing Rolls.

OUR MOTTO

QUALITY AND SERVICE AT A MINIMUM COST

Has realized thousands of repeated orders

WENTWORTH

Double Duty Travelers

Last Longer, Make Stronger
Yarn, Run Clear, Preserve the
SPINNING RING. The greatest
improvement entering the spinning
room since the advent of the HIGH
SPEED SPINDLE.

Manufactured only by the

National Ring Traveler Co.

Providence, R. I.

31 W. First Street, Charlotte, N. C.

Reg. U. S. P. O.

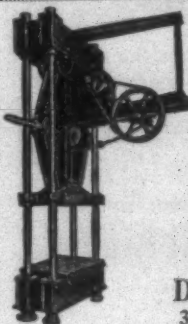


Tinsley Heads Machinery Manufacturers

At the recent annual meeting of the National Association of Textile Machinery Manufacturers at the Parker House in Boston, Mass., the following officers were elected for the ensuing year:

President, John F. Tinsley, Crompton & Knowles Loom Works; vice-president, E. Kent Swift, Whitin Machine Works.

The directors are: B. H. Bristow Draper, Draper Corporation; David F. Edwards, Saco-Lowell Shops; J. Ebert Butterworth, H. W. Butterworth & Sons Co.; Mr. Swift, Mr. Rockwell, Mr. Tinsley, C. F. Tillinghast, Textile-Finishing Machinery Company; Parkman D. Howe, Universal Winding Company, and E. H. Peirce, Atwood Machine Company.



BALING PRESS

Motor Drive, Silent Chain, Center of Screw.
Push Button Control—Reversing Switch with limit stops up and down.
Self contained. Set anywhere you can run a wire.
Our Catalogue sent on request will tell you more about them.

Dunning & Bosche Press Co., Inc.
328 W. Water St. SYRACUSE, N. Y.

Phone
Your
Orders
To
1006

EXPERT COPPERSMITHS
Sheet Metal Specialists
GRADUATE ENGINEERS

SIZE KETTLES LINED
CARD SCREENS REBUILT
SLASHER EXHAUST SYSTEMS
DESIGN VENTILATING SYSTEMS
REBUILD PICKER SCREENS
SPINNING CYLINDERS REBUILT
COPPER LINED SIZE VATS

DUSTLESS OPENING ROOMS
REPAIRED—SLASHERS—RECOVERED
PNEUMATIC CONVEYOR PIPES
VACUUM SPOOLER CLEANERS
SPARTANBURG, SOUTH CAROLINA

OBITUARY

E. H. SHANKLIN

Greer, S. C.—E. H. Shanklin, 64, manager of the Franklin Mills, died at his home. He resided in Easley until 20 years ago, when he came to Greer. His widow and one daughter survive.

Cottons in the Home

(Continued from Page 9)

demand which will undoubtedly be stronger for the fall and winter season. The patterns tend to be small, conventional and regular, chiefly floral. A dull gray blue is particularly good color. Terry cloth draperies slightly resemble these tapestries in texture, although of a looser weave, and they are similar in pattern. Leaves done in horizontal rows, with a raised self stripe between, and small conventional roses, regularly and rather closely spaced.

There is considerable scope for new designs in slip cover materials. These should be closely woven, fairly thin, but crease-resisting. Ready made slip covers are slowly getting away from the sleazy and Belgian linen types, but there is still much to be done in styling them.

The fall forecast for color brings a rather new combination into favor—a dusty blue and rose pink—very nice in flowered crashes and particularly so in tapestries and chenilles. Chartreuse which has been so well liked for a year or more, is gradually waning in popularity, and a new green, a cross between dark sage and olive, has taken its place. Gray, yellow and dark brown will be found in many of the striped fabrics this fall, both in the heavy upholstery field and in draperies. Modern blue, modern brown (both bright, dark, strong colors) tomato red and lemon yellow are popular now and will continue into the fall and winter, for solid colors, stripes and plaids.

Caption for swatch illustration

Lighting for Safety and Production

(Continued from Page 4)

doing close work. However, the glare from that lamp would reduce the seeing ability to a very marked degree depending upon the angle at which that lamp is placed in the line of vision. The light producing that glare can, therefore, be said to be wasted. A properly designed reflector should be used which adequately diffuses the light, distributes it in the area where it is needed and softens the shadows.

The data given in this paper are based upon the researches of Luckiesh and Moss of Nela Park, Cleveland, Ohio, and have been presented because it is acknowledged that good seeing is a fundamental factor in an individual's ability to work rapidly, accurately and assiduously without undue fatigue and to avoid accidents because the eye under good lighting can see more accurately, can perceive more quickly and can create instinctive muscular action in self protection. As illumination is increased there is more energy for useful work, neural and physical losses are decreased, thus increasing the reserve energy

capacity meaning that more work can be accomplished without greater fatigue. As the reserve energy capacity and the energy for useful work is increased the energy for useless work is decreased.

The science of seeing deals with physiologic optics, with physiology, with pathology and psychology. Lighting in turn affects all of these factors—all of which culminate in the efficiency, safety, welfare and happiness of the individual.

Various authorities give faulty illumination credit for 15 to 20 per cent of all industrial accidents. Whatever the figure may be, even though it is one-half of these estimates, it is too costly in view of the present knowledge of seeing and lighting and in view of the low cost of lighting today. No matter how we use the figures which could be gathered on the cost of accidents—costs to employer, amounts paid in compensation insurance, sums paid for doctors' bills and hospital fees, the costs are too high. The indirect costs of lost production, labor turnover, damaged material and equipment probably are much higher than the direct costs figured by bookkeepers and accountants. Statistical data on costs have been estimated by various authorities but they sometimes have a vague meaning because it is difficult to give exact supporting data. Anyway, such figures should not be necessary if we analyze the situation from the fundamental factors of seeing.

If we would overlook for the time being the value of good lighting from the standpoint of accident prevention its cost can be justified in improved production, less spoilage and lower labor turnover.

It is interesting to note that a hosiery mill in this State is lighted by a totally indirect lighting system, providing 25 to 30 foot-candles. The owner is so interested in maintaining good seeing conditions that he has gone a step further. In addition to providing excellent lighting, he has reserved a room in which eye testing equipment is installed. Periodically, an eye specialist tests the eyesight of the 350 employees of this mill.

In a rayon plant in North Carolina the seconds were running as high as 10 per cent. After good lighting replaced the old inadequate system, the seconds dropped to an almost insignificant figure. Just before the old system was taken out, \$6,000 worth of goods had been returned. Defects could not be seen because of the poor lighting.

Examples could be quoted further showing how good lighting improved conditions and paid its way. In many plants where there is now existing a fairly good lighting system, the lighting results are not being obtained because of lack of maintenance. Dirty reflectors, old lamp bulbs, wrong voltage lamp bulbs, empty sockets or burned out lamps, wrong size lamps in reflectors designed for specific lamp sizes and other defects which could be corrected easily are depriving the worker of the light he needs and robbing the plant owners of the benefits that better seeing conditions will provide. The lighting system is one of the tools of production and a safeguard from accidents. It should be maintained properly and given the same attention as any other machine or safeguard in the plant.



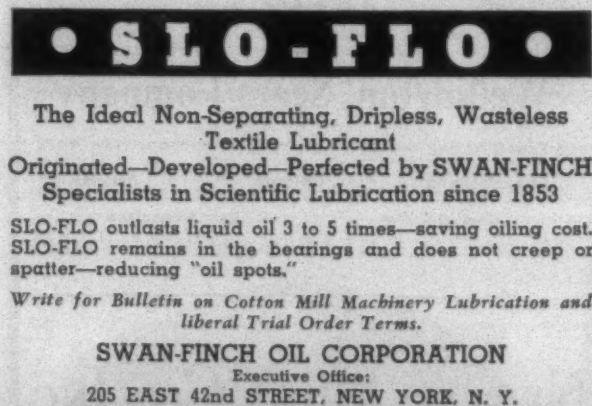
**Sterling
Ring Travelers**

SPINNING and
TWISTING problems
are often solved by
using a different style
RING TRAVELER

Call Our
Southern Representative

George W. Walker
Box 78, Greenville, S. C.
D. J. Quillen
Box 443, Spartanburg, S. C.

STERLING RING TRAVELER CO.
FALL RIVER, MASS.



• SLO-FLO •

The Ideal Non-Separating, Dripless, Wasteless
Textile Lubricant

Originated—Developed—Perfected by SWAN-FINCH
Specialists in Scientific Lubrication since 1853

SLO-FLO outlasts liquid oil 3 to 5 times—saving oiling cost.
SLO-FLO remains in the bearings and does not creep or
spatter—reducing "oil spots."

Write for Bulletin on Cotton Mill Machinery Lubrication and
liberal Trial Order Terms.

SWAN-FINCH OIL CORPORATION
Executive Office:
205 EAST 42nd STREET, NEW YORK, N. Y.



IF IT'S PAPER
Send Us Your Order

Cloth Winding Boards
Jacquard Board—Beaming Paper
Toilet Tissues
Twines—Wrapping Paper—Boxes, etc.

DILLARD PAPER CO.
GREENSBORO, N. C. GREENVILLE, S. C.

SELLING AGENTS for SOUTHERN COTTON GOODS

Deering, Milliken & Co.

Incorporated

79-83 Leonard Street

New York

99 Chauncey St., Boston 223 Jackson Blvd., Chicago

CURRAN & BARRY

320 Broadway

New York, N. Y.

Wellington, Sears Company

93 Franklin St., Boston

65 Worth St., New York

Philadelphia

Chicago

Atlanta

New Orleans

San Francisco

NEISLER MILLS Co., INC.

Selling Agents

66-68 Worth St.

New York

DOMESTIC

EXPORT

MERCHANDISING

JOSHUA L. BAILY & Co.

10-12 THOMAS ST., NEW YORK

Cotton Goods Markets

New York.—Cotton goods business showed considerable improvement last week. In the gray goods division, sales of print cloths were estimated to be at least 175 per cent of production for the week, the best business in some time. Prices on a number of constructions were advanced by an eighth cent. Buyers showed some hesitation in paying the higher prices, but a considerable volume was handled at the new levels. The improvement in business has reduced stocks held by mills to a much more favorable basis. Unfilled orders are now higher than since March. A number of buyers paid premiums for spot and nearby deliveries.

The better business in gray goods was reflected in larger sales of finished fabrics, but the improvement did not keep pace with that in unfinished lines, although it acted as a spur to better buying.

The print cloth position is considered stronger than at any time since last November. The prospect is for continued good activity at rising prices, since despite the heavy buying of the last week or more, stocks in the hands of buyers are insufficient to cover their needs, and they are finding it increasingly difficult to get nearby goods.

In the fine goods division, interest continued to center around the 45-inch combed lawns, so far as standard numbers were concerned, and since these were available in only bale lots here and there, the day's volume was unavoidably small. Prices on other standard numbers were unchanged, and where buyers occasionally needed a fill-in lot, these were sold at the full asking prices.

Colored cottons were in fair demand. Denims sold in steady amounts, and shipments against old orders continued active. Woven tickings were sold in fair amounts, with printed tickings also moving in moderate volume. Domestic were quiet with prices steady.

Sales of large quantities of 80x60 carded broadcloths on Thursday and Friday cleaned up offerings of that style at 5½¢ and the market closed at 5¢ asked. Standard makes of 100x60s were active and strong at 7½¢.

Print cloths, 27-in., 64x60s	37½
Print cloths, 28-in., 64x60s	37½
Gray goods, 38½-in., 64x60s	5½
Gray goods, 39-in., 80x80s	7½
Gray goods, 39-in., 68x72s	6
Brown sheetings, 3-yard	77½
Brown sheetings, standard	8
Tickings, 8-ounce	15¼
Denims	13
Brown sheetings, 4-yard, 56x60s	6¾
Dress gingham	16
Staple gingham	8½

J. P. STEVENS & CO., INC.

Selling Agents

40-46 LEONARD ST., NEW YORK

Cotton Yarn Markets

Philadelphia, Pa.—Yarn dealers and spinners express disappointment that the market has not yet shown any material improvement. Most buyers still lack confidence to operate ahead and continued last week to cover only on a hand-to-mouth basis. The price situation was still unchanged although there were additional reports that some spinners were willing to take concessions, even at the low prices already prevailing.

Consumers seem able to acquire necessary supplies without advancing the market and in many cases are actually securing yarns, both carded and combed, on the low bases. The longer that volume business is deferred and the more active may become the competition to move stocks. There seems little doubt that yarns being bought for quick shipment and delivered in good volume on old contracts are passing steadily into their several manufacturers and yet, according to some observers here, consumers are likely to be very tardy in making new contracts until they have clearer prospects regarding the outlook for the turnover of their own products.

Throughout the yarn consuming market there are divisions that are not reacting as well as others to improving market conditions. The result is a variety of contrary trade reports. The net change which is taking place in yard production and consuming quarters is in the direction of market improvement. Many dispute the conclusion, but others are satisfied because sales and production records are enough to convince them demand is broadening.

Consumers of carded weaving yarns want to buy far ahead in some instances but at prices that spinners will only consider for immediate specification orders. Producers need yarn orders on which to run and will quote low to get them but most refuse to sell their output many months ahead on such a price basis which has prevented many actual orders from resulting in such inquiries.

Combed yarns seem in a slightly better position. Production continues at good rates but fortunately specifications on old orders are active and deliveries good. Spinners thus far are not accumulating stocks but much larger business than the volume now being placed would seem necessary if current rate of production is to be maintained without some breakdown in prices. Despite the comparatively favorable condition, spinners of combed yarns in general are realizing an uncertain price market.

Ten South Carolina Mills Seek Process Tax Return

Spartanburg, S. C.—Ten South Carolina cotton mills, which paid floor stock and processing taxes under the new defunct AAA, have moved en masse to collect from the Federal Government an aggregate sum of more than \$3,000,000 principal and interest.

The action, brought in the United States District Court, alleges that the "assessment and collections of the so-called processing and floor taxes was illegal, erroneous and unlawful."

The mills and the sums, plus interest, sought by each are as follows: Grendel Mills, \$187,782; Panola Mills, \$97,462; Greenwood Cotton Mills, \$341,979; Matthews Mills, \$249,876; Ninety-Six Mill, \$380,941; Ware Shoals Mfg. Co., \$587,096; Monarch Mills, \$894,022; Whitney Mfg. Co., \$214,111; Abbeville Mills, \$295,416; and Laurens Mills, \$272,210.



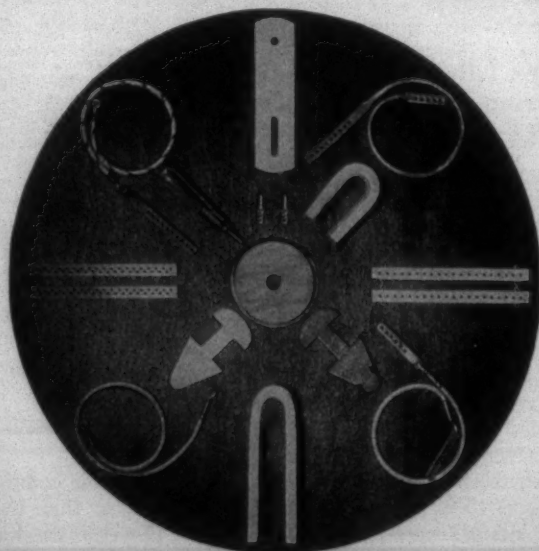
Uniform Quality— a Victor Feature

Your renewal order of any size or style of Victor Travelers, you can be sure, will contain identically the same Travelers as originally bought. Uniform in weight and finish, accuracy of circle and in the degree of hardness. You are assured uniformly lower spinning costs when you standardize on Victors. Write today for FREE samples.

VICTOR RING TRAVELER COMPANY

20 Mathewson St. Providence, R. I.
P. O. Box 1318
1733 Inverness Ave., N.E. Atlanta, Ga. Tel.—Vernon 2330
173 West Franklin Ave. Gastonia, N. C. Tel.—247

Rice Dobby Chain Company



Millbury, Massachusetts

WANTED

Modern buildings (factory construction), 30,000 square feet, or greater floor space, preferably with sprinklers and humidifiers. Greensboro Supply Co., Greensboro, N. C.

BARBER WANTED

Opening for first-class barber in small mill town. Shop equipped with chairs, mirrors, etc. Mill house at low rent. Reply X, care Textile Bulletin.

WANTED

Young man between ages of 28 and 35 with technical experience in full fashioned hosiery knitting who will be interested in opening small mill in South on profit-sharing basis. Must have full knowledge of business and be able to furnish references upon request. Money not necessary. Apply "Technical," care Textile Bulletin.

WANTED—Position as Dyer. Will travel anywhere. Graduate of Pratt Institute of Brooklyn, N. Y. 3 years laboratory and demonstration; 6 years head dyer in one of largest full-fashioned plants in East. 4 years head dyer in one of largest job dyeing establishments in East. Age 34. Will accept any reasonable offer. Address "Dyer," care Textile Bulletin.

Cannon Mil's Dividend Voted

Directors of the Cannon Mills Company declared the regular quarterly dividend of 50 cents per share on the common stock, payable July 1st to stockholders of record June 18th.

Says Ellenbogen Bill Would Bring 40% Cost Increase

New Orleans, La.—The Ellenbogen Bill will, if passed, raise textile labor costs 40 per cent, it was declared by George H. Lanier, of West Point Manufacturing Co., West Point, Ga., in his address at the annual meeting of the National Association of Purchasing Agents. However, he said, he looks for continued improvement in the textile industry.

Mr. Lanier stressed the continued movement of the cotton textile industry in the South, showing that in December, 1935, 74 per cent of the active spindles were located in that section. He mentioned the large investment necessary to manufacture in the South where mill owners have built Highway 403, between Clinton and

up whole communities for their workers, so that the investment per employee is the highest of any industry, \$3,200 per employee.

Raleigh, N. C.—Vance Basse, chief highway engineer, said State

Faison, had been designated as the official cotton road experiment in this State. Cotton furnished by the Federal Government will be used in surfacing the road and accurate records on how the surface wears will be kept.

Index To Advertisers

Where a — appears opposite a name it indicates that the advertisement does not appear in this issue.

	Page		Page
—A—		Johnson, Chas. B.	—
Abbott Machine Co.	18	—K—	
Akron Belting Co.	—	Keever Starch Co.	—
Allis-Chalmers Mfg. Co.	—	—L—	
American Cyanamid & Chemical Corp.	—	Laurel Soap Mfg. Co., Inc.	—
American Moistening Co.	—	Lindley Nurseries, Inc.	—
American Paper Tube Co.	—	Link-Belt Co.	—
Armstrong Cork Products Co.	2	—M—	
Arnold, Hoffman & Co., Inc.	—	Maguire, John P. & Co.	—
Ashworth Bros.	—	Manhattan Rubber Mfg. Div. of Ray-	—
—B—		bestos Manhattan, Inc., The	—
Bahnsen Co.	—	Murray Laboratory	25
Bally, Joshua L. & Co.	22	—N—	
Barber-Colman Co.	—	National Aniline & Chemical Co., Inc.	—
Borne, Scrymser Co.	—	National Oil Products Co.	—
Brookmire, Inc.	—	National Ring Traveler Co.	19
Brown, David Co.	—	Neisler Mills Co., Inc.	22
Brown, D. P. & Co.	—	N. Y. & N. J. Lubricant Co. Front Cover	—
Bruce, E. L. Co.	—	Noone, Wm. R. & Co.	19
—C—		Norlander Machine Co.	—
Campbell, John & Co.	—	Norma-Hoffmann Bearings Corp.	—
Carolina Refractories Co.	—	—O—	
Charlotte Chemical Laboratories, Inc.	—	Old Dominion Box Co., Inc.	—
Charlotte Leather Belting Co.	19	Onyx Oil & Chemical Co.	9
Chicago Mill & Lumber Co.	—	Orkin Exterminating Co.	—
Ciba Co., Inc.	—	—P—	
Clark Publishing Co.	—	Parks-Cramer Co.	—
Clinton Co.	13	Perkins, B. F. & Son, Inc.	—
Commercial Factors Corp.	—	—R—	
Corn Products Refining Co.	—	Rhoads, J. E. & Sons	—
Crompton & Knowles Loom Works	15	Rice Dobby Chain Co.	23
Curran & Barry	22	—S—	
Cutler, Roger W.	—	Saco-Lowell Shops	—
—D—		Seydel Chemical Co.	—
Dary Ring Traveler Co.	—	Seydel-Woolley Co.	—
Daughtry Sheet Metal Co.	25	Sherwin-Williams Co.	9
Deering, Milliken & Co., Inc.	22	Signode Steel Strapping Co.	—
Dillard Paper Co.	21	Simp-Eastwood Corp.	—
Dixon Lubricating Saddle Co.	—	Slip-Not Belting Corp.	18
Draper Corporation	—	Socony Vacuum Oil Co.	—
Dronfield Bros.	—	Soluol Corp.	—
Dunkel & Co., Paul R.	—	Sonoco Products	—
Dunning & Boschert Press Co.	20	Southern Ry.	—
DuPont de Nemours, E. I. & Co.	—	Southern Spindle & Flyer Co.	—
—E—		Sperry, D. R. & Co.	—
Eaton, Paul B.	25	Staley Sales Corp.	—
Emmons Loom Harness Co.	—	Stanley Works	13
Engineering Sales Co.	—	Steel Heddle Mfg. Co.	—
Enka, American	—	Stein, Hall & Co.	—
—F—		Sterling Ring Traveler Co.	21
Foster Machine Co.	—	Stevens, J. P. & Co., Inc.	22
Benjamin Franklin Hotel	—	Stewart Iron Works Co.	—
Franklin Process Co.	—	Stone, Chas. H., Inc.	—
—G—		Swan-Finch Oil Corp.	21
Garland Mfg. Co.	23	—T—	
General Dyestuff Corp.	—	Terrell Machine Co.	—
General Electric Co.	—	Texas Co., The	—
General Electric Vapor Lamp Co.	—	Textile Banking Co.	—
Georgia Webbing & Tape Co.	—	Textile Shop, The	20
Gill Leather Co.	—	—U—	
Goodyear Tire & Rubber Co.	—	U. S. Bobbin & Shuttle Co.	—
Grasselli Chemical Co., The	—	U. S. Gutta Percha Paint Co. Back Cover	—
Graton & Knight Co.	—	U. S. Ring Traveler Co.	—
Greenville Belting Co.	—	Universal Winding Co.	—
Gulf Oil Corp.	—	—V—	
—H—		Vanderbilt Hotel	—
H & B American Machine Co.	—	Veeder-Root, Inc.	—
Hart Products Corp.	11	Victor Ring Traveler Co.	23
Hercules Powder Co.	—	Viscose Co.	—
Hermas Machine Co.	—	Vogel, Joseph A. Co.	31
Houghton, E. F. & Co.	—	—W—	
Houghton Wool Co.	25	Washburn Printing Co.	31
Howard Bros. Mfg. Co.	—	Wellington, Sears Co.	22
Hygrolit, Inc.	—	Whitin Machine Works	—
—J—		Whitinsville Spinning Ring Co.	31
Jacobs, E. H. Mfg. Co., Inc.	—	Williams, I. B. & Sons	—
		Wolf, Jacques & Co.	—

Classified Department

WANTED—5,000 Barber-Colman Cheese Cores. Address "X," care Textile Bulletin.

WANTED—An overseer for weaving white goods for mill in South. Prefer man between ages 30 and 35. Please give references in first letter. Address "Southern Mill," care Textile Bulletin.

POSITION WANTED—Hosiery dyer and graduate chemist. Eighteen years' practical experience with the largest and best full-fashioned mills in this country. Can furnish the best of references. Thirty-eight years of age, married, with A-1 habits. Address "Chemist," care Textile Bulletin.

WANTED—Position as sewing machinist; 12 years' experience with Singers, Union Specials, Merrows of all kinds and makes. Single, 34, sober, excellent references. Go anywhere. Address "L. A. S.," care Textile Bulletin.

WANTED—Young textile graduate. Knowledge of designing and inspection of rayon merchandise required. Address "Rayon," care Textile Bulletin.

WANTED—Position as overseer slashing and drawing. 15 years' experience. Can furnish best of references. Now employed but desire greater opportunity for advancement. Address "Slashing," care Textile Bulletin.

Wanted

A sales agent with knowledge of carding and spinning calling regularly on Southern cotton mills. Address "Sales Agent," care Textile Bulletin.

FOR SALE

843 Beam Barrels for 36" Looms.
1686 20" Beam Heads, with Mechanical Let-off, for Draper or Hopedale Looms.

Hannah Pickett Mills No. 2
Rockingham, N. C.

TEXTILE ARCHITECT

(Engineer)

With good practical experience in planning and construction of modern factory buildings in the textile industry is wanted by a cotton mill in Sweden. The mill is equipped for spinning, weaving, dyeing, printing and finishing. The applicant must be absolutely qualified to carry out designs for the buildings and the placing of the machinery, as the company intends either to enlarge the present buildings or to build a new mill at more convenient quarters. Answer with information of experience, references, etc., to "Textile Engineer, Sweden 1936," Gumaelius Annoncebureau, Malmo, Sweden.

Paul B. Eaton

PATENT LAWYER

1408 Johnston Bldg., Charlotte, N. C.
514 Munsey Bldg., Washington, D. C.
Former Member Examining Corps
U. S. Patent Office

G. A. WHITE & CO., Sou. Rep.

International Moistening Co.
Jackson Moistening Co.

Foxboro Humidity Controls
Pumps, Compressor, Used
Humidifiers

Box 533

Charlotte, N. C.

Textile Mills Return Process Tax To State

Raleigh, N. C.—A. S. Brower, director of purchase and contract, said the State has been successful in collection of over 90 per cent of the cotton processing taxes it paid Southern textile mills under the AAA and which were held in escrow by the courts before the act was invalidated.

Brower said "the textile mills have been fairer about the whole matter of refunds than any other industrial line" and added the State had been least successful in efforts to get returns from meat packers.

He said he could not estimate the amount of the returns.

Plan Heavy Advertising For Cotton Week

Estimates that special newspaper and radio advertising expenditures during National Cotton Week, June 1s to 6th, will aggregate between \$2,000,000 and \$2,500,000 are cited by the Cotton-Textile Institute as additional evidence of a nation-wide conviction among participating merchants and industries that the coming summer cotton selling season may be one of the best in many years.

Newspaper promotion departments in widely scattered sections report, to the Institute, an unusual response to their offers to co-operate with local retail establishments in the develop-

MURRAY LABORATORY

Chemist and Bacteriologist

Analytical and Consulting.

Sanitary, industrial and boiler water analyses, sizing compounds, oils and general analyses.

17 years experience

21 W. McBee Ave. Greenville, S. C.

SEE

JAMES E. TAYLOR

CHARLOTTE, N. C.

For Standard

WOOL TOPS

HOUGHTON WOOL CO.

253 Summer St. Boston, Mass.

BARRETT

Specification

ROOFING

DAUGHTRY

SHEET METAL CO.

1109 E. Trade

Charlotte

ment of National Cotton Week advertising and merchandising programs.

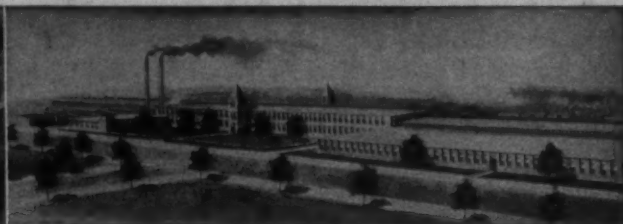
Hopes To Lusterize Cotton In Fiber State

John Dillenius, a chemical engineer, claims to have developed a process for lusterizing cotton yarn in the skein. The laboratory samples show a brilliance and feel suggestive of silk. Both characteristics, Mr. Dillenius claims, are permanent under normal conditions of use. He declares he is now making experiments with the purpose of applying the lusterizing process directly to the cotton fiber before spinning. If and when commercially developed, Mr. Dillenius believes his process will upset the theories of those technicians who he says "abandoned" the hope of converting cotton into substances resembling the silk or silk-like fibers.

U. S. Cottons Exports To Philippines Spurt

Washington. — Arrival of cotton piece goods in the Philippine Islands during April from the United States totalled 3,165,000 square meters, compared with 1,985,000 in the preceding month, according to statistics made public by the Commerce Department.

Arrivals of Japanese goods during April totalled 2,107,000 square meters, compared with 2,581,000 in March. The total arrivals from Japan and Kong for the two periods was 3,720,000 and 4,026,000 square meters, respectively.



Visiting The Mills

By Mrs. Ethel Thomas Dabbs (Aunt Becky)

BEHIND WITH MY WORK BUT DON'T BLAME ME

I know a lot of people have been looking for the usual write-up that "Aunt Becky" gives after a visit, but this department has had to give place to more important matter.

Hope you have all been reading the splendid reports of the big textile meetings in various sections of the South. When you take our paper you get the benefit of these meetings as much as if you attended them—only, of course, you miss the "eats." However, you *do* get plenty "food for thought."

Will catch up with this department just as soon as possible, and if at any time we *do* get left out, it will be for something that is far more important—so don't blame "Aunt Becky."

HICKORY, N. C.

HICKORY SPINNING AND HIGHLAND CORD MILLS

Hickory Spinning Company is one of the largest and nicest mills in the A. A. Shuford Mills group. Among our friends and readers of The Textile Bulletin are Harley F. Shuford, superintendent; W. M. Martin, overseer carding; Fred Dale, overseer dyeing; J. A. Dale, overseer finishing.

A FINE BALL TEAM

Hickory Spinning Mill folk "work when they work and play when they play." They are enthusiastic baseball fans, and pull hard for their home team, which is a member of the Western Carolina Textile League. Fred Dale is manager and W. M. Martin, business manager. The opening game was recently played at Maiden, with the Carolina Mills team, but we haven't heard the result. M. A. Bolick, of Brookford, is president of the league, which is composed of teams at Hickory Spinning Co., Hickory; Pilot Full Fashioned Hosiery, Valdese; Granite Falls Mfg. Co., Granite Falls; Boger & Crawford Co., Lincolnton; Carolina Mills, Maiden; Brookford Mills, Brookford, and there may be others.

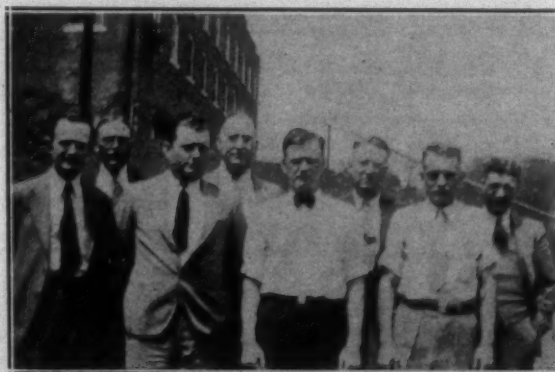
Other good friends of The Textile Bulletin among the textile leaders and key men in the Shuford Mills group are W. B. Shuford, superintendent of Highland Cordage

and the A. A. Shuford mills; R. M. Ross, overseer carding, and B. G. Murphy, overseer spinning, Highland Cordage Co.; N. P. Edge, overseer carding and spinning, and W. H. Long, overseer twisting and winding, A. A. Shuford Mill.

HENRIETTA, N. C.

HENRIETTA MILL—T. M. Bagwell, Superintendent.

Henrietta is a little mill town full of friendly folk. Henrietta Inn has a competent manager in Mrs. Lawing, where the lack of modern conveniences is offset by her cheerful and happy disposition and a hearty welcome for visitors, added to well cooked and wholesome food nicely served.



Back Row, Left to Right—Hendrix, Roll Cover; J. A. Holmes, Overseer Weaving; W. R. Morrow, Overseer Carding; F. B. Edwards, Cotton Buyer.
Front Row—J. E. Cargill, Master Mechanic; J. O. Campbell, Overseer Spinning; H. M. Toney, Overseer Cloth Room; T. B. Weese, Supply Clerk.

J. A. Holmes, overseer weaving, had told me that I would find a fine looking widower at the Inn—a man who is a great church and Sunday school worker, a leading citizen in the community, makes good money, and, in fact, a "a fine catch for some woman smart enough to take advantage of Leap Year."

And I found it all true—but he went and ate onions for supper and that was that! Still worse, he tried to persuade me to eat one—and that was the end of it all!

Mrs. Lawing gave me a good bed in an upstairs front room where I could get the advantage of music made by

the water falling over the dam—a sure cure for sleeplessness. The only music equal to it is the singing of frogs in a marsh bog. Either of the above will send me to sleep right away.

There are some real beauty spots on the river, especially the water falls, where Mr. Cargill, the master mechanic, took me to get a kodak picture.

THE WEAVE ROOM

I began my work in the weave room, and will start here to introduce our friends.

J. A. Holmes, overseer of weaving, says there are no finer operatives to be found than works in his department, and the operatives say that there is no finer overseer than Mr. Holmes. It is easy to see that the best of feeling prevails, and that they pull together in perfect harmony. The entire department is in good condition and work running nicely.

I appreciated meeting a good number of the ladies. Miss Ruth Hamrick is the only girl I have found running the tying-in machine. She says she likes it, too.

Mrs. Virginia Tate is timekeeper for the entire mill, except the shop, and is said to be one of the best in her line.

It is unusual to find the majority of loom fixers interested in textile publications. Here seven out of nine are taking *The Textile Bulletin*. They are: R. M. Smith, Willie Moore, who is taking an I. C. S. course in plain and fancy weaving; A. E. Evans, W. W. Hughes, Henry Brindle, R. M. Wilson, a good church worker; Earl Quinn. W. W. Hughes and Johnnie Grant are also taking I. C. S. courses in weaving, and Jesse Ramsey is taking an electrical course.

C. F. Stanly, tying-in machine operator, is "politicking." His hat is in the ring for the office of constable. One of his "stump speakers" said, "Vote for Stanly and stay out of jail!" Mr. Stanly is popular among his friends, who we hope will boost him to the constable's office with a big majority.

OTHER PROGRESSIVE KEY MEN

W. R. Morrow is overseer carding; A. W. Wood, card grinder.

J. O. Campbell, overseer spinning, and H. B. Shelton, section man; A. B. Nannery, overseer spinning on second shift. Sorry he did not get in the picture.

H. M. Toney, overseer cloth room; N. P. Hendrix, in charge of the roller shop; J. E. Cargill, master mechanic; Lester W. Steadman, shop.

E. C. Pigford, slasher foreman; Thomas wall, warehouse man; John Kuqkendall, picker foreman.

This mill has 32,534 spindles and 846 looms. The product is mostly print cloths. T. J. Bagell is superintendent; J. F. Timmerman, office manager and paymaster.

We have a large list of subscribers at Henrietta which we prize highly.

THE BLIND MAN

Mr. Cantrell, the blind book salesman, was on hand and taking a lot of orders for "Aunt Becky's" books and others. That man is a wonder. It was nice to see how well the people looked after him and made sure of his comfort.

MOORESVILLE, N. C.

MOORESVILLE COTTON MILLS—MANUFACTURES A WIDE RANGE OF FABRICS

This is one of the mills that the State has reason to be proud of. It is nice and clean, has a fine set of officials, good overseers and pays reasonable wages.

There are 15,050 looms and 75 loom fixers—carding and spinning in proportion. The towel and sewing rooms are lovely in many colors, and give work to so many pretty girls.

There's a real honest-to-goodness ball club that had not lost a game this year, and bids fair to become the champion team of this section of the state.

There are good churches and schools, and quite a number of operatives who excel in music. Mooresville Cotton Mills have had some hard knocks and unjustly so. Everybody who is self-respecting and prefers work to charity is proud of the opportunity to earn an honest living, and we are proud of the operatives in Mooresville Cotton Mills.

THE KEY MEN

Among our big list of subscribers are the following, just as we wrote them up:

R. B. Cook, overseer carding and spinning; E. B. Fowler, Paul Gibson, section men; J. W. Mahaffee, overseer No. 3 spinning; J. M. Proctor, overseer No. 4 carding and spinning.

C. H. Johnson, assistant overseer No. 2 spinning and twisting; O. B. Hager and B. L. Sherrill, section men.

C. A. Vandeford, assistant overseer in carding; G. S. Garrett, G. G. Summers, R. B. Hare, W. R. Goodwin and W. R. Carrigan, progressive section men.

John E. Wright, superintendent of weaving; W. M. Tuttle, production manager; E. T. Christenbury, bookkeeper; Nearl D. Poole, bookkeeper; C. L. Sloop, assistant overseer of weaving; M. W. Wilhelm, overseer weaving; T. M. Hill, overseer drawing and trying-in.

J. P. Cashion, H. S. Dinger, J. M. Brackett, R. H. Newton, W. C. Broom, M. L. Christenbury, J. A. Day, J. C. Ballard, F. M. Farmer, D. R. Broom and L. M. Lawing, loom fixers.

Mr. Lawing is the son of Mr. and Mrs. Lawing, of Henrietta Inn, Henrietta, N. C., where I met his wife and fine baby, who were visiting his parents.

J. E. McNeely, shipping; R. L. Potts, in cloth room; R. D. Redding, "utility man;" R. W. Little, overseer cloth room; P. B. McNeely, overseer towel department; G. C. Starnes, assistant in towel department; Carl Small, machinist; J. W. Hornaday, formerly of Spofford Mills, overseer weaving; R. L. Edwards, assistant overseer weaving.

W. W. Evans (Dad Evans), supply man, has read the Bible through so many times he has lost count. He is a wonderfully happy Christian, and has a wide and wholesome influence, as well as the confidence of all who know him.

C. F. Lafoy is overseer carding in No. 3; G. E. Hill, overseer spinning in No. 3; J. C. Wilkins, overseer carding and spinning; O. J. Mundy, Sim Alsobrooks and D. C. Garrett are among the live-wire section men in spinning.

Southern Sources of Supply

For Equipment, Parts, Material, Service

Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in TEXTILE BULLETIN. We realize that operating executives are frequently in urgent need of information service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.

ABBOTT MACHINE CO., Wilton, N. H. Sou. Agt., L. S. Ligon, Greenville, S. C.

AKRON BELTING CO., Akron, O. Sou. Branches, 209 Johnston Bldg., Charlotte, N. C.; 905 Woodside Bldg., Greenville, S. C.; 20 Adams Ave., Memphis, Tenn.

ALLIS-CHALMERS MFG. CO., Milwaukee, Wis. Sou. Sales Offices: Atlanta, Ga., Healey Bldg., Berrien Moore, Mgr.; Baltimore, Md., Lexington Bldg., A. T. Jacobson, Mgr.; Birmingham, Ala., Webb Crawford Bldg., John J. Greagan, Mgr.; Charlotte, N. C., Johnston Bldg., William Parker, Mgr.; Chattanooga, Tenn., Tennessee Electric Power Bldg., D. S. Kerr, Mgr.; Cincinnati, O., First National Bank Bldg., W. G. May, Mgr.; Dallas, Tex., Santa Fe Bldg., E. W. Burbank, Mgr.; Houston, Tex., Shell Bldg., K. P. Ribble, Mgr.; New Orleans, La., Canal Bank Bldg., F. W. Stevens, Mgr.; Richmond, Va., Electric Bldg., C. L. Crosby, Mgr.; St. Louis, Mo., Railway Exchange Bldg., C. L. Orth, Mgr.; San Antonio, Tex., Frost National Bank Bldg., Earl R. Hurv, Mgr.; Tampa, Fla., 415 Hampton St., H. C. Planagan, Mgr.; Tulsa, Okla., 18 North Guthrie St., D. M. McCargar, Mgr.; Washington, D. C., Southern Bldg., H. C. Hood, Mgr.

AMERICAN CYANAMID & CHEMICAL CORP., 30 Rockefeller Plaza, New York City. Sou. Office and Warehouse, 301 E. 7th St., Charlotte, N. C.; Paul Haddock, Sou. Mgr.

AMERICAN ENKA CORP., 271 Church St., New York City. Sou. Rep., R. J. Mebane, Asheville, N. C.

AMERICAN MOISTENING CO., Providence, R. I. Southern plant, Charlotte, N. C.

AMERICAN PAPER TUBE CO., Woonsocket, R. I. Sou. Rep., Ernest F. Culbreath, P. O. Box 11, Charlotte, N. C.

ARMSTRONG CORK PRODUCTS CO. (Textile Division), Lancaster, Pa. Sou. Office, 33 Norwood Place, Greenville, S. C. T. L. Hill.

ARNOLD, HOFFMAN & CO., Inc., Providence, R. I. Frank W. Johnson, Sou. Mgr., Box 1268, Charlotte, N. C. Sou. Reps., Robert E. Buck, Box 904, Greenville, S. C.; Harold T. Buck, 1615 12th St., Columbus, Ga.; W. Chester Cobb, Hotel Russell Erskine, Huntsville, Ala.

ASHWORTH BROS., Inc., Charlotte, N. C. Sou. Offices, 44-A Norwood Place, Greenville, S. C.; 215 Central Ave., S.W., Atlanta, Ga.; Texas Rep., Textile Supply Co., Dallas, Tex.

ATLANTA HARNESS & REED MFG. CO., Atlanta, Ga., A. P. Robert and G. F. Carmichael, Atlanta Office. Sou. Reps., Ala. and Ga., Barney R. Cole, Atlanta Office; Carolinas and Va., W. T. Smith, P. O. Box 349, Greenville, S. C.

BAHNSON CO., THE, Winston-Salem, N. C. North and South Carolina Rep., S. C. Stimson, Winston-Salem, N. C. Sou. Reps., I. L. Brown, 886 Drewery St. N.E., Atlanta, Ga.; Northern Rep., F. S. Frambach, 703 Embree Crescent, Westfield, N. J.; Western Rep., D. D. Smith, 814 W. South St., Kalamazoo, Mich.

BARBER-COLMAN CO., Rockford, Ill. Sou. Office, 31 W. McBee Ave., Greenville, S. C.; J. H. Spencer, Mgr.

BORNE, SCRYMSEY CO., 17 Battery Place, New York City. Sou. Mgr., H. L. Slever, P. O. Box 1169, Charlotte, N. C. Sales Reps., W. B. Uhler, 608 Palmetto St., Spartanburg, S. C.; R. C. Young, Jefferson Apts., Charlotte, N. C.; John Ferguson, 303 Hill St., LaGrange, Ga.

BROWN CO., DAVID, Lawrence, Mass. Sou. Reps., Ralph Gossett, Woodside Bldg., Greenville, S. C.; William J. Moore, Woodside Bldg., Greenville, S. C.; Belton C. Plowden, Griffin, Ga.; Gastonia Mill Supply Co., Gastonia, N. C.; Russell A. Singleton, Dallas, Tex.; S. Frank Jones, 209 Johnston Bldg., Charlotte, N. C.; J. Richard Plowden, 421 10th Ave., West, Birmingham, Ala.

BROWN & CO., D. P., Philadelphia, Pa. Sou. Rep., N. W. Pyle, Box 834, Charlotte, N. C.

CAMPBELL & CO., JOHN, 75 Hudson St., New York City. Sou. Reps., M. L. Kirby, P. O. Box 432, West Point, Ga.; Mike A. Stough, P. O. Box 701, Charlotte, N. C.; A. Max Browning, Hillsboro, N. C.

CAROLINA REFRACTORIES CO., Hartsville, S. C.
CHARLOTTE CHEMICAL LABORATORIES, Inc., Charlotte, N. C.

CHARLOTTE LEATHER BELTING CO., Charlotte, N. C.
CHICAGO MILL & LUMBER CO., 614 Johnston Bldg., Charlotte, N. C. Sales Staff, E. J. Mueller, C. P. Semmlow. Executive Offices, 111 W. Washington St., Chicago, Ill. Plants at: Plymouth, N. C.; Helena, Ark.; Greenville, Miss.; Tallulah, La.; Chicago, Ill.

CIBA CO., Inc., Greenwich and Morton Sts., New York City. Sou. Offices and Warehouse, Charlotte, N. C.

CLINTON CO., Clinton, Iowa. Sou. Reps., Luther Knowles, Jr., P. O. Box 127, Charlotte, N. C.; T. LeRoy Smith, Box 654, Tel. 2-3921, Charlotte, N. C. Clinton Sales Co., Inc., Byrd Miller, Grady Gilbert, 2 Morgan Bldg., Greenville, S. C.; C. Lee Gilbert, 130 High Point Rd., Box 481, Spartanburg, S. C.; A. C. Boyd, 1071 Bellevue Drive N.E., Tel. Hem. 7055, Atlanta, Ga. Stocks carried at Carolina Transfer & Storage Co., Charlotte, N. C.; Consolidated Brokerage Co., Greenville, S. C.; Atlanta Service Warehouse Co., Atlanta, Ga.

COMMERCIAL FACTORS CORP., 2 Park Ave., New York City. Sou. Rep., T. Holt Haywood, Reynolds Bldg., Winston-Salem, N. C.

CORN PRODUCTS REFINING CO., 17 Battery Place, New York City. Corn Products Sales Co., Greenville, S. C.; John R. White, Mgr.; Corn Products Sales Co., Montgomery Bldg., Spartanburg, S. C.; J. Canty Alexander, Asst. Sou. Mgr.; Corn Products Sales Co. (Mill and Paper Starch Div.), Hurt Bldg., Atlanta, Ga.; C. G. Stover, Mgr.; Corn Products Sales Co., 824-25 N. C. Bank Bldg., Greensboro, N. C.; W. R. Joyner, Mgr.; Corn Products Sales Co., Comer Bldg., Birmingham, Ala.; L. H. Kelley, Mgr. Stocks carried at convenient points.

CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass. Sou. Plant, Charlotte, N. C.

CUTLER, ROGER W., 141 Milk St., Boston, Mass. Sou. Agents: B. L. Stewart Roller Shop, Laurinburg, N. C.; Dixie Roller Shop, Rockingham, N. C.; A. J. Whittemore & Sons, Burlington, N. C.; The Georgia Roller Covering Co., Griffin, Ga.; Textile Roll Coverings Works, LaGrange, Ga.; East Point Roller Cov. Co., East Point, Ga.; Dixie Roll & Cot Co., Macon, Ga.; Morrow Roller Shop, Albemarle, N. C.; Peerless Roll Covering Co., Chattanooga, Tenn.; Textile Roll & Cot Co., Dallas, Tex.; Greenville Textile Supply Co., Greenville, S. C.; Anniston Roll Covering Co., Anniston, Ala.

DARY RING TRAVELER CO., Taunton, Mass. Sou. Rep., John E. Humphries, P. O. Box 843, Greenville, S. C.; Chas. L. Ashley, P. O. Box 720, Atlanta, Ga.

DAUGHTRY SHEET METAL CO., Charlotte, N. C.

DILLARD PAPER CO., Greensboro, N. C.; Greenville, S. C. Sou. Reps., E. B. Spencer, Box 681, Charlotte, N. C.; Jess Caldwell, East Radford, Va.

DRAPER CORPORATION, Hopedale, Mass. Sou. Rep., E. N. Darrin, Vice-Pres.; Sou. Offices and Warehouses, 242 Forsyth St., S.W., Atlanta, Ga.; W. M. Mitchell; Spartanburg, S. C.; Clare H. Draper, Jr.

DUNKEL CO., PAUL A., 82 Wall St., New York City.

DU PONT DE NEMOURS & CO., Inc., E. I., Dyestuffs Div., Wilmington, Del. John L. Dabbs, Mgr.; D. C. Newman, Asst. Mgr.; E. P. Davidson, Asst. Mgr.—Technical. Sou. Warehouses, 302 W. First St., Charlotte, N. C. Reps., L. E. Green, H. B. Constable, W. R. Ivey, Charlotte Office; J. D. Sandridge, W. M. Hunt, 1031 Jefferson Standard Bldg., Greensboro, N. C.; B. R. Dabbs, John L. Dabbs, Jr., 715 Providence Bldg., Chattanooga, Tenn.; R. D. Sloan, Amanda Apt., Greenville, S. C.; J. M. Howard, 135 S. Spring St., Concord, N. C.; W. F. Crayton, Dimon Court Apt., Columbus, Ga.; J. A. Franklin, Augusta, Ga.; Tom Taylor, Newnan, Ga.

DU PONT DE NEMOURS & CO., Inc., E. I., The R. & H. Chemicals Dept., Wilmington, Del. R. M. Levy, Dist. Sales Mgr., 302 W. First St., Charlotte, N. C.

EATON, PAUL B., 213 Johnston Bldg., Charlotte, N. C.
EMMONS LOOM HARNESS CO., Lawrence, Mass. Sou. Rep., George F. Bahan, P. O. Box 581, Charlotte, N. C.

ENGINEERING SALES CO., 601 Builders' Bldg., Charlotte, N. C.

FRANKLIN PROCESS CO., Providence, R. I. Sou. Plants, Greenville, S. C. and Chattanooga, Tenn.

GENERAL COAL CO., 1019 Johnston Bldg., Charlotte, N. C. C. L. Rowe, Sou. Sales Mgr.; S. P. Hutchinson, Jr., Asst. Sou. Sales Mgr.; Reps., J. W. Lassiter, Grace American Bldg., Richmond, Va.; D. H. R. Wigg, Law Bldg., Norfolk, Va.; W. A. Counts, Law and Commerce Bldg., Bluefield, W. Va.; J. C. Boraden, Greensboro, N. C.; H. C. Moshell, Charleston, S. C.; G. P. W. Black, Greenville, S. C.; F. W. Reagan, Asheville, N. C.; H. G. Thompson, Bristol, Tenn.

GENERAL DYESTUFF CORP., 230 Fifth Ave., New York City. Sou. Office and Warehouse, 1101 S. Blvd., Charlotte, N. C.; B. A. Stigen, Mgr.

GENERAL ELECTRIC CO., Schenectady, N. Y. Sou. Sales Offices and Warehouses, Atlanta, Ga. E. H. Ginn, Dist. Mgr.; Charleston, W. Va. W. L. Alston, Mgr.; Charlotte, N. C. E. P. Coles, Mgr.; Dallas, Tex. L. T. Blaisdell, Dist. Mgr.; Houston, Tex. E. M. Wise, W. O'Hara, Mgr.; Oklahoma City, Okla. F. D. Hathway, B. F. Dunlap, Mgrs. Sou. Sales Offices, Birmingham, Ala. R. T. Brooke, Mgr.; Chattanooga, Tenn. W. O. McKinney, Mgr.; Ft. Worth, Tex. A. H. Keen, Mgr.; Knoxville, Tenn. A. B. Cox, Mgr.; Louisville, Ky. E. B. Myrick, Mgr.; Memphis, Tenn. G. O. McFarlane, Mgr.; Nashville, Tenn. J. H. Parkdale, Mgr.; New Orleans, La. B. Willard, Mgr.; Richmond, Va. J. W. Hicklin, Mgr.; San Antonio, Tex. I. A. Uhr, Mgr.; Sou. Service Shops, Atlanta, Ga.; W. J. Selbert, Mgr.; Dallas, Tex. W. F. Kaston, Mgr.; Houston, Tex. F. C. Bunker, Mgr.

GENERAL ELECTRIC VAPOR LAMP CO., Hoboken, N. J. Sou. Reps., Frank E. Keener, 187 Spring St., N.W., Atlanta, Ga.; C. N. Knapp, Commercial Bank Bldg., Charlotte, N. C.

GILL LEATHER CO., Salem, Mass. Sou. Reps., Russell A. Singleton, Dallas, Tex.; Belton C. Plowden, Griffin, Ga.; Ralph Gossett, Greenville, S. C.; Wm. J. Moore, Greenville, S. C.; W. J. Hamner, Gastonia, N. C.

GILMER CO., L. H., Tacony, Philadelphia, Pa. Sou. Factory Rep., William W. Conrad, Greenwood, S. C. Sou. Mill Supply Distributors: Alabama—Owens-Richards Co., Inc., Birmingham; Southern Bearing & Parts Co., Birmingham; Selma Foundry & Machine Co., Selma, Florida—Llewellyn Machinery Corp., Miami; Harry P. Leu, Inc., Orlando; Johnston Engineering Corp., St. Petersburg; Southern Pump & Supply Co., Tampa.

Georgia—Fulton Supply Co., Atlanta; Corbin Supply Co., Macon; Mill & Ship Supply Co., Savannah (formerly John D. Robinson Co. Mississippi—Soule Steam Feed Works, Meridian, North Carolina—McLeod Leather & Belting Co., Greensboro; Odell Mill Supply Co., Greensboro. South Carolina—Greenville Textile Supply Co., Greenville. Tennessee—Rogers-Bailey Hardware Co., Chattanooga; Browning Belting Co., Knoxville; J. E. Dilworth Co., Memphis; Nashville Machine & Supply Co., Nashville. Virginia—Todd Co., Inc., Norfolk; Smith-Courtney Co., Richmond; Johnston Electric Co., Staunton. West Virginia—Central Electric Repair Co., Fairmont.

GOODRICH CO., B. F., 4th and Brevard Sts., Charlotte, N. C. Atlanta Dist. Office, 376 Nelson St., S.W., Atlanta, Ga.

GOODYEAR TIRE & RUBBER CO., Inc., The, Akron, O. Sou. Reps., W. C. Killick, 205-207 E. 7th St., Charlotte, N. C.; P. B. Eckels, 141 N. Myrtle Ave., Jacksonville, Fla.; Boyd Arthur, 713-715 Linden Ave., Memphis, Tenn.; T. F. Stringer, 500-6 N. Carrollton Ave., New Orleans, La.; E. M. Champion, 709-11 Spring St., Shreveport, La.; Paul Stevens, 1609-11 First Ave., N. Birmingham, Ala.; B. S. Parker, Jr., Cor. W. Jackson and Oak Sts., Knoxville, Tenn.; E. W. Sanders, 209 E. Broadway, Louisville, Ky.; H. R. Zierach, 1225-31 W. Broad St., Richmond, Va.; J. C. Pye, 191-199 Marietta St., Atlanta, Ga.

GRASSELLI CHEMICAL CO., Cleveland, O. Sou. Office and Warehouse, 202 W. First St., Charlotte, N. C.

GRATON & KNIGHT CO., Worcester, Mass. Sales Reps., R. W. Davis, Graton & Knight Co., 313 Vine St., Philadelphia, Pa.; D. A. Ahlstrand, 1271 N. Morningdale Drive, Atlanta, Ga.; D. F. Gordon, Graton & Knight Co., 115 S. 11th St., St. Louis, Mo.; O. D. Landis, 1709 Springdale Ave., Charlotte, N. C.; P. T. Flackney, Jr., 2360 Forrest Ave., Apt. 3, Memphis, Tenn.; H. L. Cook, Graton & Knight Co., 2615 Commerce St., Dallas, Tex. Jobbers: Young & Vann Supply Co., Birmingham, Ala.; McGowin-Lyons Hdwe. & Supply Co., Mobile, Ala.; C. C. Anderson, 301 Woodside Bldg. Annex, Greenville, S. C.; Cameron & Barkley Co., Charleston, S. C.; Cameron & Barkley Co., Jacksonville, Fla.; Cameron & Barkley Co., Miami, Fla.; Cameron & Barkley Co., Tampa, Fla.; Smith-Courtney Co., Richmond, Va.; Taylor-Parker, Inc., Norfolk, Va.; Battey Machinery Co., Rome, Ga.; Columbus Iron Works, Columbus, Ga.; Fulton Supply Co., Atlanta, Ga.; Dallas Belting Co., Dallas, Tex.; Textile Supply Co., Dallas, Tex.; Textile Mill Supply Co., Charlotte, N. C.; Keith-Simmons Co., Nashville, Tenn.; Lewis Supply Co., Memphis, Tenn.; Lewis Supply Co., Helena, Ark.; Southern Supply Co., Jackson, Tenn.; E. D. Morton & Co., Louisville, Ky.; Standard Supply & Hdwe. Co., New Orleans, La.

GREENVILLE BELTING CO., Greenville, S. C.

GREENSBORO LOOM REED CO., Box 1375, Greensboro, N. C. Phone Greensboro 5071 collect. Geo. A. McFetters, Pres. and Mgr.; Geo. H. Batchelor, sales manager.

GULF OIL CORPORATION OF PA., Successor to GULF REFINING CO., Pittsburgh, Pa. Division Sales Offices: Atlanta, Ga.—A. W. Ripley, Greenville, S. C.; T. C. Scaffie, Spartanburg, S. C.; J. H. Hooten, Gastonia, N. C.; R. G. Burkhalter, Charlotte, N. C.; G. F. King, Jr., Augusta, Ga.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; New Orleans, La.; Houston, Tex.; Louisville, Ky.; Toledo, O.

HART PRODUCTS CORP., 1440 Broadway, New York City. Sou. Reps., Samuel Lehrer, Box 234, Spartanburg, S. C.; Talley W. Piper, P. O. Box 534, Fairfax, Va.; L. R. Unruh, P. O. Box 1602, Charlotte, N. C.

H & B AMERICAN MACHINE CO., Pawtucket, R. I. Sou. Offices, 815 The Citizens and Southern National Bank Bldg., Atlanta, Ga.; J. C. Martin, Agt.; Johnston Bldg., Charlotte, N. C.; J. W. Rimmer, Mgr.; Fritz Zweifel, Fred Dickinson, Jim Miller, sales and service representatives.

HERCULES POWDER CO., Wilmington, Del. Sou. Reps., Chas. H. Stone, Charlotte, N. C.

HERMAS MACHINE CO., Hawthorne, N. J. Sou. Rep., Carolina Specialty Co., P. O. Box 520, Charlotte, N. C.

HOUGHTON & CO., E. F., 240 W. Somerset St., Philadelphia, Pa. Sou. Sales Mgr., W. H. Brinkley, 1410 First National Bank Bldg., Charlotte, N. C. Sou. Reps., Walter Andrews, 1306 Court Square Bldg., Baltimore, Md.; C. L. Elgert, 1306 Court Square Bldg., Baltimore, Md.; C. B. Kinney, 1410 First National Bank Bldg., Charlotte, N. C.; D. O. Wylie, 1410 First National Bank Bldg., Charlotte, N. C.; J. J. Reilly, 2855 Peachtree, Apt. No. 49, Atlanta, Ga.; James A. Brittain, 1526 Sutherland Place, Homewood, Birmingham, Ala.; J. W. Byrnes, 333 St. Charles St., New Orleans, La.; B. E. Dodd, 333 St. Charles St., New Orleans, La.

HOUGHTON WOOD CO., 253 Summer St., Boston, Mass. Sou. Rep., Jas. E. Taylor, P. O. Box 2084, Charlotte, N. C.

HOWARD BROS. MFG. CO., Worcester, Mass. Sou. Office and Plant, 244 Forsyth St., S.W., Atlanta, Ga.; Guy L. Melchor, Mgr. Sou. Rep., Guy L. Melchor, Jr., Atlanta Office; S.W. Rep., Russell A. Singleton, Mail Route 6, Dallas, Tex.

JACOBS MFG. CO., E. H. Danielson, Conn. Sou. Rep., W. Irving Buillard, Pres., Charlotte, N. C. Mgr. Sou. Service Dept., S. B. Henderson, Greer, S. C.; Sou. Distributors, Odell Mill Supply Co., Greensboro, N. C.; Textile Mill Supply Co., and Charlotte Supply Co., Charlotte, N. C.; Gastonia Mill Supply Co., Gastonia, N. C.; Shelby Supply Co., Shelby, N. C.; Sullivan Hdwe. Co., Anderson, S. C.; Montgomery & Crawford, Spartanburg, S. C.; Industrial Supply Co., Clinton, S. C.; Carolina Supply Co., Greenville, S. C.; Fulton Supply Co., Atlanta, Ga.; Southern Belting Co., Atlanta, Ga.; Greenville Textile Mill Supply Co., Greenville, S. C.; and Atlanta, Ga.; Young & Vann Supply Co., Birmingham, Ala.; Waters-Garland Co., Louisville, Ky.

KEEVER STARCH CO., Columbus, O. Sou. Office, 1200 Woodside Bldg., Greenville, S. C.; Daniel H. Wallace, Sou. Agt. Sou. Warehouses, Greenville, S. C.; Charlotte, N. C.; Burlington, N. C. Sou. Reps., Claude B. Iler, P. O. Box 1333, Greenville, S. C.; Luke J. Castile, 615 N. Church St., Charlotte, N. C.; F. M. Wallace, 1115 S. 26th St., Birmingham, Ala.

LAUREL SOAP MFG. CO., Inc., 2607 E. Toga St., Philadelphia, Pa. Sou. Rep., A. Henry Gaede, P. O. Box 1083, Charlotte, N. C.

LINK-BELT CO., Philadelphia-Chicago, Indianapolis. Sou. Offices: Atlanta Plant, 1116 Murphy Ave., S.W., I. H. Barbee, Agt.; Baltimore, 913 Lexington Bldg., H. D. Alexander; Dallas

Warehouse, 413-15 Second Ave., E. C. Wendell, Mgr.; New Orleans, 747 Tchoupitoulas St.

MAGUIRE & CO., JOHN P., 370 Fourth Ave., New York City. Sou. Rep., Taylor R. Durham, First Nat'l Bank Bldg., Charlotte, N. C.

MANHATTAN RUBBER MFG. DIV. OF RAYBESTOS-MAN. HATTAN, Inc., Passaic, N. J. Sou. Offices and Reps., The Manhattan Rubber Mfg. Div., 1103 N. Fifth Ave., Birmingham, Ala.; Alabama—Anniston, Anniston Hdwe. Co.; Birmingham, Crandall Eng. Co. (Special Agent); Birmingham, Long-Lewis Hdwe. Co.; Gadsden, Gadsden Hdwe. Co.; Huntsville, Noolin Hdwe. & Supply Co.; Tuscaloosa, Allen & Jemison Co.; Montgomery, Teague Hdwe. Co. Florida—Jacksonville, Cameron & Barkley Co.; Miami, Cameron & Barkley Co.; Tampa, Cameron & Barkley Co. Georgia—Atlanta, Amer. Machinery Co.; Columbus, A. H. Watson (Special Agent); Macon, Bibb Supply Co.; Savannah, D. DeTreville (Special Agent). Kentucky—Ashland, Ben Williamson & Co.; Harlan, Kentucky Mine Supply Co.; Louisville, Graft-Pelle Co. North Carolina—Asheville, T. S. Morrison & Co.; Charlotte, Charlotte Supply Co.; Durham, Dillon Supply Co.; Elizabeth City, Elizabeth City Iron Works & Supply Co.; Fayetteville, Huske Hdwe. House; Goldsboro, Dewey Bros.; High Point, Kester Machinery Co. and Beeson Hdwe. Co.; Lenoir, Bernhardt-Seagle Co.; Gastonia, Gastonia Belting Co.; Raleigh, Dillon Supply Co.; Wilmington, Wilmington Iron Works; Shelby, Shelby Supply Co.; Winston-Salem, Kester Machinery Co. South Carolina—Anderson, Sullivan Hdwe. Co.; Charleston, Cameron & Barkley Co.; Clinton, Industrial Supply Co.; Columbia, Columbia Supply Co.; Greenville, Sullivan Hdwe. Co.; Sumter, Sumter Machinery Co.; Spartanburg, Montgomery & Crawford, Tennessee—Chattanooga, Chattanooga Belting & Supply Co.; Johnson City, Summers Hdwe. Co.; Knoxville, W. J. Savage Co.; Nashville, Buford Bros., Inc. Salesmen—E. H. Olney, 101 Gertrude St., Alta Vista Apts., Knoxville, Tenn.; C. P. Shook, Jr., 1031 N. 30th St., Birmingham, Ala.; B. C. Nabers, 2519 27th Place S., Birmingham, Ala.; R. T. Rutherford, 1318 Harding Place, Charlotte, N. C.

MURRAY LABORATORY, Greenville, S. C.

NATIONAL ANILINE & CHEMICAL CO., 40 Rector St., New York City. Sou. Office and Warehouse, 201 W. First St., Charlotte, N. C.; Julian T. Chase, Res. Mgr., Kenneth Mackenzie, Asst. to Res. Mgr. Sou. Reps., Dyer S. Moss, A. R. Akerstrom, W. L. Barker, C. E. Blakely, Frank L. Feazle, Charlotte Office; James I. White, Amer. Savings Bk. Bldg., Atlanta, Ga.; H. A. Rodgers, 1004 James Bldg., Chattanooga, Tenn.; J. H. Shuford, Harry L. Shinn, 932 Jefferson Standard Life Bldg., Greensboro, N. C.; E. L. Pemberton, 324 Dick St., Fayetteville, N. C.

NATIONAL OIL PRODUCTS CO., Harrison, N. J. Sou. Reps., R. B. MacIntyre, 801 E. Blvd., Charlotte, N. C.; G. H. Small, 799 Argonne Ave., N.E., Atlanta, Ga. Warehouse, Chattanooga, Tenn.

NATIONAL RING TRAVELER CO., 257 W. Exchange St., Providence, R. I. Sou. Office and Warehouse, 131 W. First St., Charlotte, N. C. Sou. Agt., C. D. Taylor, Gaffney, S. C. Sou. Reps., L. E. Taylor, Box 272, Atlanta, Ga.; Otto Pratt, Gaffney, S. C.; H. B. Askew, Box 272, Atlanta, Ga.

N. Y. & N. J. LUBRICANT CO., 292 Madison Ave., New York City. Sou. Office, 601 Kingston Ave., Charlotte, N. C.; Lewis W. Thomason, Sou. Dist. Mgr. Sou. Warehouses, Charlotte, N. C.; Spartanburg, S. C.; New Orleans, La.; Atlanta, Ga.; Greenville, S. C.

NORLANDER MACHINE CO., New Bedford, Mass. Sou. Plant, 213 W. Long St., Gastonia, N. C.

NORMA-HOFFMANN BEARINGS CORP., Stamford, Conn. Sou. Rep., E. W. Lawrence, 1341 Plaza, Charlotte, N. C.

ONYX OIL & CHEMICAL CO., Jersey City, N. J. Sou. Rep., Edwin W. Klumph, 1716 Garden Terrace, Charlotte, N. C.

PLYMOUTH BOX & PANEL CO., Sales Office, 614 Johnston Bldg., Charlotte, N. C. Sales Staff, E. J. Mueller, C. P. Semmlow. Plant at Plymouth, N. C.

PERKINS & SON, Inc., B. F., Holyoke, Mass.

ROY & SONS, B. S., Worcester, Mass. Sou. Office, 21 Byrd Blvd., Greenville, S. C. John R. Roy, Representative.

SACO-LOWELL SHOPS, 147 Milk St., Boston, Mass. Sou. Office and Repair Depot, Charlotte, N. C.; Walter W. Gayle, Sou. Agent; Branch Sou. Offices, Atlanta, Ga.; John L. Graves, Mgr.; Greenville, S. C.

SEYDEL CHEMICAL CO., Jersey City, N. J. Sou. Rep., Harold P. Goller, Greenville, S. C.; Francis P. Boyer, Lowell, Mass.

SEYDEL-WOOLLEY CO., 748 Rice St., N.W., Atlanta, Ga.

SHERWIN-WILLIAMS CO., THE, Cleveland, O. Sou. Reps., E. H. Stegar, 212 W. First St., Charlotte, N. C.; R. B. Olney, 153 E. Main St., Spartanburg, S. C.; W. O. Maaten, 2308 S. Main St., Winston-Salem, N. C.; J. K. Montague, 230 Bay View Blvd., Portsmouth, Va.; T. R. Moore, 509 Westover Ave., Roanoke, Va.; G. N. Jones, 207 Glascock St., Raleigh, N. C.; John Limbach, 233 Peachtree St., Atlanta, Ga.; D. S. Shimp, 3 Cummins Sta., Nashville, Tenn. Warehouses at Philadelphia, Charlotte, Spartanburg, Atlanta, Columbus, Nashville, Newark and Boston.

SIGNODE STEEL STRAPPING CO., 2600-2620 N. Western Ave., Chicago, Ill. Sou. Warehouses and Offices, Greensboro, N. C., 908 Lakeview St., Phone 6935, O. B. Shelton, Rep.; Atlanta, Ga., 113 Courtland St., S.E., A. S. Stephens, Rep.; New Orleans, La., 700 Tchoupitoulas St., P. E. Odenhahl, Rep.

SIPP-EASTWOOD CORP., Paterson, N. J. Sou. Rep., Carolina Specialty Co., Charlotte, N. C.

SLIP-NOT BELTING CORP., Kingsport, Tenn.

SOCONY-VACUUM OIL CO., Inc., Southeastern Div. Office, 1602 Baltimore Trust Bldg., Baltimore, Md. Warehouses: Union Storage Warehouse Co., 1000 W. Morehead St., Charlotte, N. C.; Textile Warehouse Co., 511 Rhett St., Greenville, S. C.; South Atlantic Bonded Warehouse Co., Greensboro, N. C.; New South Express Lines, Columbia, S. C.; Terminal Storage Corp., 317 N. 17th St., Richmond, Va.; Taylor Transfer Co., 102 Boush St., Norfolk, Va.

SOLUOL CORP., 123 Georgia Ave., Providence, R. I. Sou. Rep., Eugene J. Adams, P. O. Box 329, Anderson, S. C.

SONOCO PRODUCTS CO., Hartsville, S. C.

SOUTHERN SPINDLE & FLYER CO., Charlotte, N. C.

STALEY MFG. CO., A. E., Decatur, Ill. Sou. Offices, 721 Glenn Bldg., Atlanta, Ga., Wm. H. Randolph, Jr., Sou. Mgr. 812 Montgomery Bldg., Spartanburg, S. C.; Geo. A. Dean, Reps., W. T. O'Steen, Greenville, S. C.; John A. Harris, Greensboro, N. C.; R. R. Berry, Atlanta, Ga.; H. A. Mitchell, Birmingham, Ala.

STANLEY WORKS, THE, New Britain, Conn. Sou. Office and Warehouse, 552 Murphy Ave., S.W., Atlanta, Ga., H. C. Jones, Mgr.; Sou. Rep., Corry Lynch, P. O. Box 1204, Charlotte, N. C.

STEEL HEDDLE MFG. CO., 2100 W. Allegheny Ave., Philadelphia, Pa. Sou. Office Plant, 621 E. McBee Ave., Greenville, S. C., H. E. Littlejohn and J. J. Kaufman, Jr., Vice-Pres. in charge of reed plant; Atlanta, Ga., H. Ralford Gaffney, 268 McDonough Blvd., Greensboro, N. C., C. W. Cain.

STEIN, HALL & CO., Inc., 285 Madison Ave., New York City. Sou. Office, Johnston Bldg., Charlotte, N. C., Ira L. Griffin, Mgr.

STERLING RING TRAVELER CO., 101 Lindsey St., Fall River, Mass. Sou. Rep., Geo. W. Walker, P. O. Box 78, Greenville, S. C.; D. J. Quillen, P. O. Box 443, Spartanburg, S. C.

STEWART IRON WORKS, Cincinnati, O. Sales Reps., Peterson-Stewart Fence Construction Co., 241 Liberty St., Spartanburg, S. C.; Fred C. Shaefer, West Point, Ga.; A. E. Sortore, 27 Dartmouth Ave., Avondale Estates, Ga.; Ruff Hdw. Co., 1649 Main St., Columbia, S. C.; Lewis M. Clyburn, Box 388, Lancaster, S. C.; R. E. Davis, P. O. Box 343, Goldsboro, N. C.; Henry D. Bunch, 319 S. Boylan Ave., Raleigh, N. C.; Lewis L. Merritt, Odd Fellows Bldg., Wilmington, N. C.; Edwin C. Boyette, Jr., 1025 Arosa Ave., Charlotte, N. C.; John G. Webb, Hillsboro, N. C.; S. Donaldson Fortson, 648 Broad St., Augusta, Ga.; The Taylor Iron Works & Supply Co., 1014 Broadway, Macon, Ga.; D. E. Kehoe, 412 E. 40th St., Savannah, Ga. Complete sales and erection service available through all of our representatives.

STONE, CHAS. H., Inc., Stone Bldg., Charlotte, N. C.

TERRELL MACHINE CO., Charlotte, N. C. E. A. Terrell, Pres and Mgr.

TEXAS CO., THE, New York, N. Y. District Offices, Box 901, Norfolk, Va., and Box 1722, Atlanta, Ga. Bulk plants and warehouses in all principal cities. Lubrication Engineers, H. L. Marlow, W. H. Grose, J. C. Whitehurst, Charlotte, N. C.; P. H. Baker, Spartanburg, S. C.; D. L. Keys, Richmond, Va.

TEXTILE BANKING CO., 55 Madison Ave., New York City. Sou. Rep., Chas. W. Metcalf, 1112 Commercial National Bank Bldg., Charlotte, N. C.

TEXTILE SHOP, THE, Franklin St., Spartanburg, S. C. E. J. Eaddy, Sec. and Treas.

UNIVERSAL WINDING CO., Providence, R. I. Sou. Offices, Charlotte, N. C., Atlanta, Ga.

U S BOBBIN & SHUTTLE CO., Manchester, N. H. Sou. Plants, Greenville, S. C.; Johnson City, Tenn., and Monticello, Ga. Sou. Reps., E. Rowell Holt, First Nat. Bk. Bldg., Charlotte, N. C.; M. Ousley, P. O. Box 816, Greenville, S. C.; Chas. Sidney Jordan, Monticello, Ga., and L. K. Jordan, Sales Mgr., Monticello, Ga.

U. S. GUTTA PERCHA PAINT CO., Providence, R. I. Sou. Fac. Reps., J. S. Palmer, 1400-A Woodside Bldg., Greenville, S. C.; L. K. Palmer, P. O. Box 241, Birmingham, Ala.; William M. Moore, 601 Pearl St., Lynchburg, Va. Sou. Distributors Barreled Sunlight, D. A. Hines, 316 Twelfth St., Lynchburg, Va.; The Henry Walke Co., P. O. Box 1003, Norfolk, Va.; Bullington Paint Co., Inc., Fourth and Broads Sts., Richmond, Va.; Morgan's, Inc., 111 W. Broad St., Savannah, Ga.; Nelson Hdw. Co., 17 Campbell Ave., E. Roanoke, Va.; Atlantic Paint Co., 207 Meeting St., Charleston, S. C.; Pritchard Paint & Glass Co. of Asheville, 77 Patton Ave., Asheville, N. C.; Pritchard Paint & Glass Co., 12 W. 5th St., Charlotte, N. C.; Gate City Paint Co., 110 N. Greene St., Greensboro, N. C.; Montgomery & Crawford, Inc., Spartanburg, S. C.; Dobyns-Taylor Hdw. Co., Kingsport, Tenn.; Chapman Drug Co., 516 State St., Knoxville, Tenn.; The Eason-Morgan Co., 322 Second Ave., N., Nashville, Tenn.; Binswanger Co. of Tenn., 645-655 Union Ave., Memphis, Tenn.; G. & H. Paint & Glass Co., 1016 Broadway, Columbus, Ga.; The Hutchens Co., 100 S. Jefferson St., Huntsville, Ala.; Campbell Coal Co., 236-240 Marietta St., N.W., Atlanta, Ga.; Favrot Roofing & Supply Co., P. O. Box 116, Station G, New Orleans, La.; Standard Bldg. Mt. Co., Inc., 230 31st St., Birmingham, Ala.; Shaw Paint & Wallpaper Co., Durham, N. C.; Vick Paint Co., 219 W. Fifth St., Winston-Salem, N. C.; Baldwin Supply Co., Bluefield, W. Va.; Baldwin Supply Co., Beckley, W. Va.; Southern Pine Lumber Co., 104 E. Main St., Clarksburg, W. Va.; Rhodes, Inc., 809 Cherry St., Chattanooga, Tenn.

U. S. RING TRAVELER CO., 159 Aborn St., Providence, R. I. Sou. Reps., William W. Vaughan, P. O. Box 792, Greenville, S. C.; Oliver B. Land, P. O. Box 158, Athens, Ga.

VEEDER-ROOT, Inc., Hartford, Conn. Sou. Office, Room 1401 Woodside Bldg., Greenville, S. C., Edwin Howard, Sou. Sales Mgr.

VICTOR RING TRAVELER CO., Providence, R. I., with Sou. office and stock room at 137 S. Marietta St., Gastonia, N. C. Also stock room in charge of B. F. Barnes, Jr., Mgr., 1733 Inverness Ave., N.E., Atlanta, Ga.

VISCOSE CO., Johnston Bldg., Charlotte, N. C., Harry L. Dalton, Mgr.

WHITIN MACHINE WORKS, Whitinsville, Mass. Sou. Office, Whitin Bldg., Charlotte, N. C., W. H. Porcher and R. I. Dalton, Mgrs.; 1317 Healey Bldg., Atlanta, Ga. Sou. Reps., M. P. Thomas, Charlotte Office; I. D. Wingo and M. J. Bentley, Atlanta Office.

WHITINSVILLE SPINNING RING CO., Whitinsville, Mass. Sou. Rep., W. L. Nicholson, 2119 Conniston Place, Charlotte, N. C.

WILLIAMS & SONS, I. B., Dover, N. H. Sales Reps., C. C. Withington, 710 Woodside Bldg., Greenville, S. C.; R. A. Brand, 213 Johnston Bldg., Charlotte, N. C.

WOLF, JACQUES & CO., Passaic, N. J. Sou. Reps., C. R. Bruning, 306 S. Chapman St., Greensboro, N. C.; G. W. Searell,

Commodore Apts., Asheville, N. C.; Walter A. Wood Supply Co., 4517 Roseville Blvd., Chattanooga, Tenn.

WYTHEVILLE WOOLEN MILLS, Inc., Wytheville, Va. Sou. Reps., Charlotte Supply Co., Charlotte, N. C.; Montgomery & Crawford Co., Inc., Spartanburg, S. C.; Sullivan Hardware Co., Anderson, S. C.; Southern Belting Co., Atlanta, Ga.; Young & Vann, Birmingham, Ala.; James Supply Co., Chattanooga, Tenn.; Russell A. Singleton, Jackson, Miss., and Dallas, Tex.; Proximity Mercantile, Greensboro, N. C.

The Effect of Sunlight on the Strength and Color of Fabrics

(Continued from Page 8)

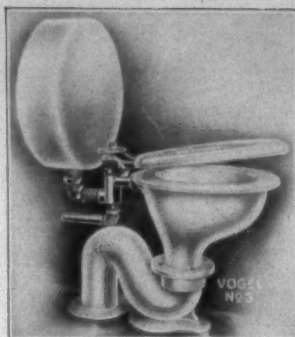
Exposure to sunlight affected the color of all white and all dyed fabrics, as determined by spectrophotometric analysis. White fabrics became more yellow as the exposure periods lengthened. Dyed fabrics varied in their color changes; some became darker and others lighter, while some changed in hue. The general tendency of most colored fabrics was to become lighter and more grey, the color curve becoming more nearly straight as the exposure increased. The greatest color changes occurred in the broadcloths and the least in the suitings and ginghams. Dark colors in general showed less color change than did fabrics less heavily dyed. Fading was not limited to any one color or colors. All colors underwent considerable change in one or more fabrics but blue and green were in general less changed than yellow, lavender, and pink. The least faded fabrics were in most cases the fabrics least tendered by exposure. Doubtless this greater resistance to fading and tendering was due to the fact that these colors have no absorption band in the region of light most effective in changing strength and color. These findings agree in general with those of a previous study in which 22 cotton fabrics were exposed to sunlight for a total of 375 hours.

This study shows that it is possible to secure colored cotton fabrics which undergo only slight changes in color and which retain much of their original strength even after five hundred hours of exposure to sunlight. It is concluded that a requirement of fastness to one hundred hours of exposure to sunlight before color changes are perceptible is reasonable and not impossible to attain. Fabrics guaranteed fast to light were found to be more fast than those not guaranteed. The fabrics guaranteed washing fast were fast to washing but very fugitive in light. For cotton fabrics which are to be exposed to light and which are to be laundered, the consumer should insist that the guarantee includes fastness to both light and washing.

For
QUICK RESULTS
Use
Bulletin Want Ads

Read Every Week All Over the Textile South

**LONGER SERVICE
AND FEWER
REPAIRS !**



VOGEL Number Five Closets, due to their efficient and economical operation, are being installed in mills and factories all over the country. Furthermore, by use of the **VOGEL** Number One Valve, this outfit can be made semi frost-proof. This permits fires to be banked over week-ends or for days at a time without danger of freezing.

Sold by plumbers everywhere

JOSEPH A. VOGEL COMPANY
Wilmington, Del.
St. Louis, Mo.

VOGEL PATENTED **Products**



The place to get rings **QUICKEST**

For quickest service, place your ring order in the hands of a firm which would not be in existence if it had not consistently given outstanding ring service for 63 years. Rings do not coast along as a side-line here. Instead, we are geared up to start shipment on your urgent orders in 10 to 12 days — or even in one day if your size is in stock. For quicker action on better rings, specify **DIAMOND FINISH!**

WHITINSVILLE (MASS.)

SPINNING RING CO.
Makers of Spinning and  *Twister Rings since 1873*

Southern Representative: **WALTER L. NICHOLSON**, 2119 Conlston Place, Charlotte
Mid-West Representative: **ALBERT R. BREEN**, 2650 Coyne Street, Chicago

SPECIAL PRINTING OFFER!

FOR A LIMITED TIME ONLY

To acquaint more mills with the high quality printing produced in our modern plant, we are making the following offer for a limited time only:

5,000 LETTERHEADS - \$12.95

(Printed on Management Bond—A Hammermill Product)

5,000 Large Envelopes - - \$12.50

5,000 Small Envelopes - - \$ 8.75

5,000 Outlook Envelopes 9 1/2" \$15.50

5,000 Outlook Envelopes 6 3/4" \$11.15

(Regular and Outlook Envelopes may be included in single order for 5,000 at pro rata cost. Simply specify quantity of each kind desired.)

HIGH QUALITY STOCK AND WORKMANSHIP GUARANTEED

Here Is Your Opportunity To Save Money — Act Quickly

No Order Accepted for more or less than 5,000 Letter Heads or Envelopes—at this price.

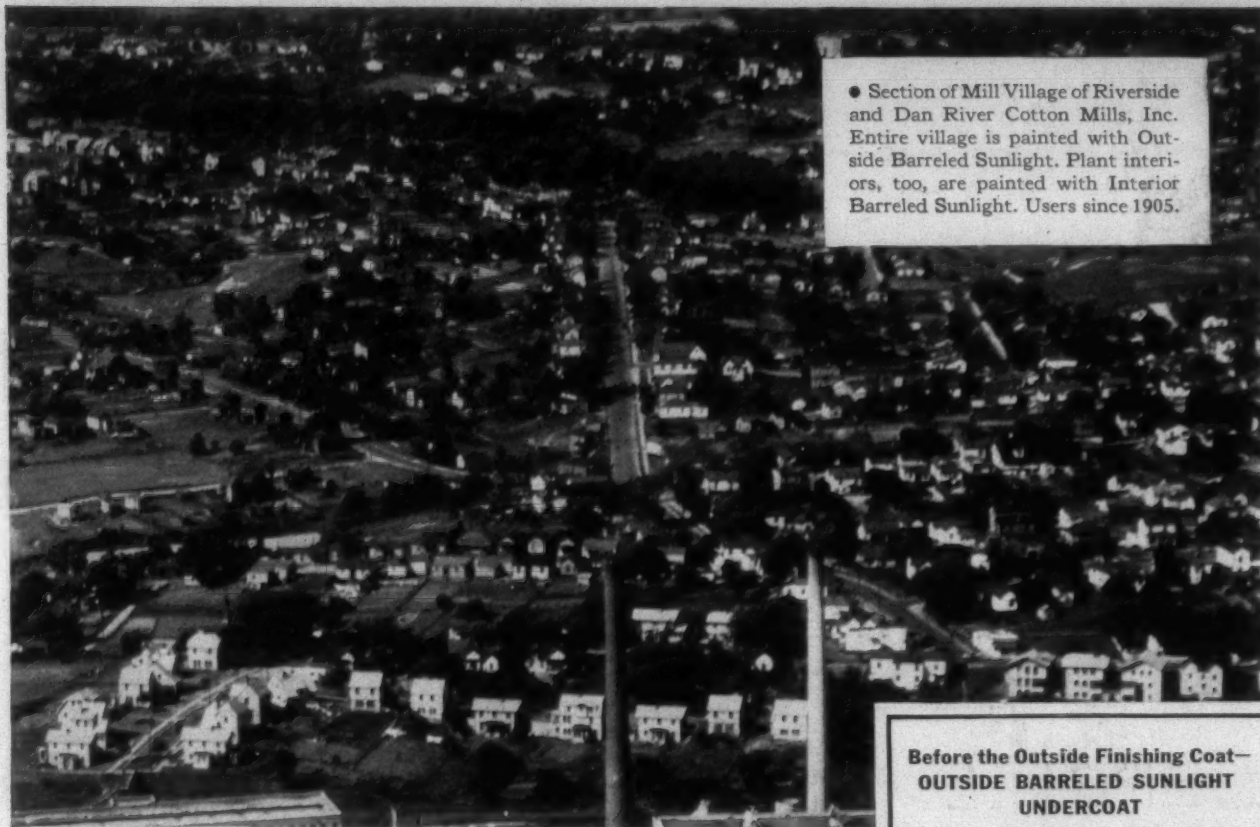
Washburn Printing Company

Printers of Textile Bulletin
CHARLOTTE

David Clark, President
NORTH CAROLINA

SAVE MONEY

in Mill Village Maintenance



● Section of Mill Village of Riverside and Dan River Cotton Mills, Inc. Entire village is painted with Outside Barreled Sunlight. Plant interiors, too, are painted with Interior Barreled Sunlight. Users since 1905.

FIRST PAINTINGS cost less when you use Outside Barreled Sunlight. For, in spite of its slightly higher price per gallon, you need less paint per job. Tremendous spreading and covering powers insure that. And this also means very real savings where painting costs are greatest—in time and labor.

Repaintings, too, cost less... *when they come.* This unusually durable exterior paint wears slowly, smoothly, evenly. Surfaces are left in better

shape to receive their new coat... less time and labor for scraping and sandpapering!

This "whitest of all outside whites" is also made in 32 rich, handsome, surprisingly clean-looking colors. Write for a more detailed description and free color chart to U. S. Gutta Percha Paint Company, 5-F Dudley Street, Providence, R. I. Branches or distributors in all principal cities. (For Pacific Coast, W. P. Fuller & Company.)

Before the Outside Finishing Coat— OUTSIDE BARRELED SUNLIGHT UNDERCOAT

It's as important as the finishing coat—the *undercoat* of any exterior painting job! Outside Barreled Sunlight Undercoat does a real job of priming... It *penetrates and bonds*, providing a film that readily takes and holds the Outside Barreled Sunlight Finishing Coat. Highly pigmented, Outside Barreled Sunlight Undercoat produces a *harder drying* film than the more elastic finishing coat. This is vital to longer wear. It brushes easily, covers better, and dries nearly "flat" with just the right "tooth" to allow quick, easy application of finishing coat.

OUTSIDE BARRELED SUNLIGHT

REG. U. S. PAT. OFF.

INSTITUTE FOR RESEARCH OCT 37
IN SOCIAL SERVICE 1451 G R
UNIVERSITY OF N C BOX 711
CHAPEL HILL N C